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and Modern Industry

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Industry and the Atom:

WHAT PRICE NUCLEAR POWER?

Bigger Profits from Smaller Products

Integrated Marketing: The Customer Knows Best

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Editorial

Something for Nothing

CAN WE, as a nation, spend our way to a higher level of prosperity? One school of economists says yes. They believe the spending should begin with bigger Government public works projects. Their premise is that increased production maintains the full workforce and provides the disposable income which in turn generates purchasing power.

There is one difficulty with this line of reasoning. The consumer and the wage-earner may be the same person, but a man often thinks and acts differently when earning than when spending a dollar. As a consumer, he is a man of independent judgment—willing to spend or anxious to save—and his mood at the retail counter has a pronounced influence on the pace of our economic machinery. When he decides to spend his dollar, he reduces accumulated inventories and stimulates the flow of trade. When he chooses to save it instead, he increases the money reservoir for future industrial expansion. Both saving and spending are necessary to our economic health, but the pulse of business depends on consumer attitudes, which are not always predictably related to the fluctuations of personal income and employment levels.

The proponents of spending fear the penalties of a deflated dollar, and with good reason: accumulated debts become increasingly burdensome when values fall. They admit the hazards of rapid inflation, but claim at the same time that gradual long-term inflation is inevitable and might as well be accepted under reasonable controls. Some, calling long-term inflation a misnomer, say the proper gauge of values is the standard of living measured against salaries, wages, and dividends. In the minds of the inflationists who think in terms of automobiles, TV sets, home appliances, shower baths, and other material evidence of comfort and recreation, the barter principle of goods and services seems to be the equitable measure of exchange. Comparing the hardships of bare subsistence in a period of deflation with a generous living standard accompanied by creeping wage-price inflation, they hastily choose the latter. But the alternatives are deceptive if not altogether false. History demonstrates that unimpeded inflation invites economic disaster, a penalty much more severe than the harsh but seldom fatal consequences of deflation.

The momentum of money alone cannot produce an increased vitality in this nation's economy. That can only come from a real gain in productivity, which in turn demands rigorous determination and vigorous effort by both management and labor to curb the sinister speed of the treadmill that increases turnover of goods and services without corresponding gains in net profits or dollar purchasing equivalent.

Like sin, disease, and war, long-term inflation has been with us for many centuries—but we don't have to submit to it passively, or swallow the arguments of those who attempt to delude us with statistical drugs. The struggle must go on for fundamental economic honesty. There's still a lot of merit to the old saw, "You can't get something for nothing."

The Editors

WASHINGTON Business Front

JOSEPH R. SLEVIN

WASHINGTON, D.C. — Government trustbusters are stepping up the pace of their anti-merger drive. They are putting the final touches on a handful of merger suits to be brought against big corporations, and they intend to make the court actions the key feature of their 1959 antitrust campaign.

The Justice Department has been gradually shifting the emphasis of its antitrust enforcement activity to merger suits from the cumbersome monopoly cases that traditionally have been the hard core of its antitrust operations.

Both the merger and monopoly suits are weapons that the trustbusters use in trying to prevent the domination of a market by a few companies. But they have come to the conclusion that the merger suits are manageable actions that can quickly be brought to a successful conclusion, whereas the monopoly cases are complicated suits that drag on for years and, even when won, often don't do the job intended.

A better chance in court

The trustbusters think, too, that the Government is more likely to get the relief that it wants in a merger case than in a monopoly suit. Many judges, who would find it distasteful to order a corporation to sell off part of its existing facilities in a monopoly case, would have no such compunction against forbidding one corporation to acquire another in a merger case ruling.

The trustbusters are bringing their merger suits under a 1950 amendment to Section 7 of the Clayton Act. The amendment strengthens the Government's hand by simplifying the legal tests it has to meet to bar a merger.

Section 7 originally prohibited one corporation from acquiring another if the merger would substantially lessen competition between the two companies. The amended section goes much further. It forbids a merger if the acquisition of one company by another may substantially lessen competition or tend to create a monopoly "in any line of commerce in any section of the country."

This is the law the Government relied upon in preventing Bethlehem Steel Corp. from acquiring Youngstown Sheet & Tube Company. Back in November, Federal Judge Edward Weinfeld found for the Government in a sweeping decision that confirmed the trustbusters' conviction that the amended law gave them a powerful new weapon to prevent the development of monopoly situations.

Rackets and price probes

None of this is to suggest that the Justice Department's Anti-trust Division will file only merger cases from here on out. It intends to rely heavily on the Bethlehem Steel case in pressing ahead with its anti-merger drive, but there will be two other major prongs to the 1959 antitrust campaign. One will be a precedent-setting use of the antitrust laws for criminal prosecutions of labor racketeers. The other will be a series of antitrust cases against companies in fields where prices are "sticky."

The criminal section of the antitrust laws is the only Federal criminal statute that provides for granting immunity from prosecution to witnesses. Attorney General William P. Rogers intends to begin antitrust actions against labor leaders in rackets cases, then place heavy reliance on the immunity section to develop the Government's case.

Witnesses who have refused to answer questions put by the Senate Investigations Subcommittee, on the ground that their answers might tend to incriminate them, will not enjoy the same Constitutional protection when they are called by Federal grand juries, for they will be granted immunity against prosecution. They will be able to remain mum only if they can conveniently lose their memories—a dodge that frequently can be thwarted by a tough judge, armed with contempt power.

The "sticky" price antitrust cases will be geared to the Administration's still developing anti-inflation program. They will be aimed at consumer goods industries rather than at the basic industries and, more often than not, will be regional or local cases brought against groups such as gasoline dealers, bakers, dairies, and the like.

These won't be the most important cases from a national policy standpoint. But the bulk of the antitrust suits that are filed will be relatively small price-fixing actions of this sort. They are the grassroots antitrust cases. Generally, they are the direct result of a complaint from a local consumer or competitor. "It brings home to the people in Keokuk and Dubuque just what antitrust is all about," one official says. "They may have read something about the Du Pont case, but when they find the price of milk went down a penny after we filed a suit, then they know what antitrust is."

The trustbusters are striving for quality rather than quantity these days, and their attitude will be reflected in the consumer goods cases. Even though most of their actions will be consumer product suits, there will be fewer than there would have been several years ago. The bias toward greater selectivity will show up in the number of criminal suits, too. Instead of filing a number of small criminal cases against business men, the Government will bring a few significant indictments.

The Administration unsuccessfully petitioned the last Congress for additional authority to bolster its anti-merger operations, and it will renew the request this year. It wants a pre-notification law which will assure that the Justice Department will find out about a merger before it takes place, and it wants "civil investigative demand" power which would enable the Department to subpoena information from companies that are planning to merge. The Government now has to depend on the voluntary cooperation of the companies, and it isn't always forthcoming.

Labor's legislative demands

Organized labor is feeling its oats, and its spokesmen will be more active in the new 86th Congress than in any other Congress of recent memory. The "right to work" campaign sparked a heavy outpouring of union votes that greatly strengthened Democratic candi-

dates in a number of states. Labor maintains that the election returns are a mandate for more liberal legislation. It intends to impress this conclusion upon the members of the Senate and the House every chance it gets.

The unions want Congress to enact major changes in the minimum wage, unemployment compensation, Social Security, housing, education, and other public welfare programs. They also intend to urge Congress to abolish the non-Communist affidavit provision of the Taft-Hartley Act and to make a number of other revisions in the law that labor used to call the "Slave Labor Act." Until just a few years ago, the unions repeatedly but fruitlessly clamored for its repeal.

To say that labor will demand certain changes is not to say that labor will get them. The 86th Congress is not a labor-controlled Congress. The moderates hold the power. Many laws will be liberalized, but the changes will fall well short of union demands.

"Heads we win, tails you lose"

Democratic strategists are looking forward with relish to the campaign ammunition they will collect from a business upturn that continues through 1960. They will claim prosperity came back because of the big Democratic majorities the voters elected in 1958.

If business activity slides off before the November 1960 Presidential election, the Democrats will then switch signals and blame the renewed downturn on Administration policies.

Whether the Democratic tactics will work remains to be seen. It's far from certain that the Democrats will be able to collect the credit for a continuing business upturn. Most politicians think that the reward for a tax cut accrues to the Administration that holds the White House rather than to the party that controls Congress. By the same token, the President would collect the dividends from a return to high employment.

Good news for exporters

There's been a notable improvement in the economic strength of the free world. The change has been so marked that it's a little surprising to remember that the British were fighting desperately to prevent a devaluation of the pound sterling a year ago last Fall. But Britain and other free world countries have been adding to their reserves of gold and dollars ever since.

It's a happy development for American exporters. The foreign countries won't necessarily boost their purchases of American goods any time soon. But their recently acquired funds will provide a welcome cushion that at least will help them continue their purchases from the United States when they next run into difficult times. END

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The Trend of Business

An action report on the U.S. economy

1959: Off to a Good Start

Business in Brief . . .

SALES: ***Retail trade will move up in coming months***

PRODUCTION: ***A steady rise in the first half of 1959***

EMPLOYMENT: ***New highs in sight later in the year***

INCOME ***will be at peak levels most of the year***

PRICES ***will soon begin to edge upward again***

THE CLOSING weeks of 1958 brought more news of a continued, although not spectacular, recovery in over-all business activity. This steady upward movement will extend well into 1959, but as we approach pre-recession peaks the rate of increase will slacken. The final stages of the recovery will be reached some time in the middle of the year, and will be followed by a renewed, but not sharp, upswing.

Higher levels of personal income and a gradual rise in employment will spark continued gains in consumer spending throughout the first half of the year. Month-to-month gains in durable goods will outpace those in nondurables. The continued rise in retail volume will boost both wholesalers' and manufacturers' sales and new orders, as most business men begin to build up their inventories.

To accommodate this steady rise in demand, manufacturers will step up production, and record levels will be matched about mid-year. As excess capacity is reduced and corporate profits move up, producers will begin to spend more on new plants and equipment. This increased spending by business and consumers, and higher Government outlays, will occur along with a moderate rise in prices and a renewal of inflation.

Consumers more bullish

The recent upsurge in consumer spending, which boosted total retail trade for all of 1958 to nearly that of the previous year, is a good indication that recession memories are fading and shoppers are becoming more interested in spending than in saving. More well-heeled consumers will be replacing their automobiles, television sets, laundry equipment, and other durables with newer models. Sales of major appliances and television sets will catch up to year-earlier levels early in 1959. Retailers of furniture, floor coverings, and linens can expect substantial year-to-year gains during the first quarter.

The current moderate increases in apparel sales will persist at least through the Easter selling season. Apparel stores expect the most noticeable gains in higher-priced merchandise, especially in women's dresses and coats.

Record sales of food products are a certainty during the first quarter of 1959. Frozen food sales will increase as more new products reach the market, and stocks in some frozen food lines will be limited at times.

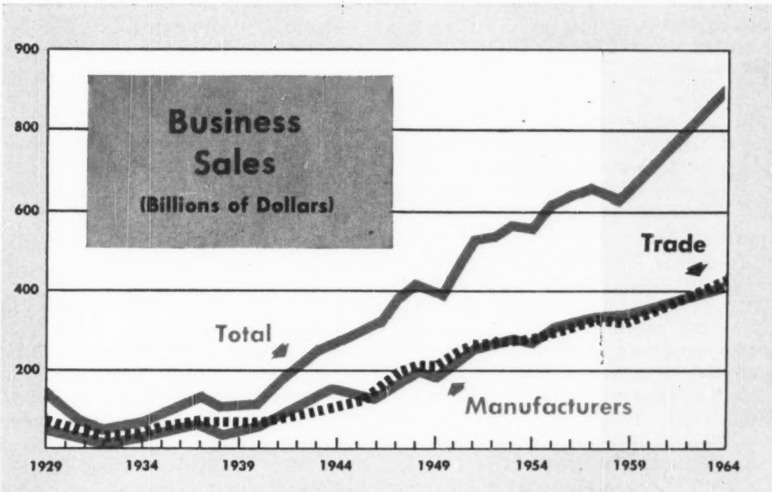
Although they showed concern over the prospect of price increases, consumers recently interviewed by the Survey Research Center of the University of Michigan were much more in a buying mood—especially for big-ticket items—than they were in an earlier survey conducted last June.

More installment buying

This growing consumer appetite for durables, particularly autos, will spark a revival in installment buying. Although the consumer installment debt outstanding will expand somewhat in early 1959, a really substantial increase will not occur much before the second quarter of the year. Much of this depends, of course, on whether the encouraging response to the 1959 autos persists through the early part of the year.

The level of personal income will continue to edge up to record levels as increased employment adds to the total of wages and salaries, particularly in the durable goods manufacturing industries.

The percentage of unemployed in the labor force will gradually decline, but the rate of decrease will be somewhat



POPULATION INCREASES, *higher prices, and increased consumption per capita have accounted for most of the rise in total business sales and will prompt further rises in the coming years. Figures for 1958–64 are estimated. Source: U.S. Department of Commerce.*

Looking Four Quarters Ahead . . . .

First Quarter 1958*	Second Quarter 1958*	Third Quarter 1958*	Fourth Quarter 1958†	Total	*Figures in billions of dollars at seasonally adjusted annual rates*	First Quarter 1959†	Second Quarter 1959†	Third Quarter 1959†	Fourth Quarter 1959†	Total
425.8	429.0	439.0	453.0	436.7	GROSS NATIONAL PRODUCT	462.2	469.9	475.4	482.0	472.4
286.2	288.3	291.5	296.0	290.5	CONSUMER SPENDING	300.6	304.2	307.8	311.5	306.0
89.5	90.9	93.3	94.8	92.1	GOVERNMENT OUTLAYS	96.2	98.0	99.4	100.3	98.5
50.1	49.7	54.2	62.2	54.1	PRIVATE INVESTMENT	65.4	67.7	68.2	70.2	67.9

*National Income Division, U.S. Department of Commerce. †Commentators' estimates.

It now seems clear that the upswing in business will carry into 1960. At year-end, prospects were that the nation's total output of goods and services would advance continuously through 1959, averaging more than $470 billion for the year and exceeding $480 billion next Autumn. Since only a mild rise in prices seems in the cards, most of the gain will be in real terms and should not be threatened by severely restrictive credit policy.

The projected movement, however, hardly spells a business boom. Although both industrial output and total physical product will reach new peaks, the advance from the pre-recession level will not be strong enough to match interim growth in our productive capacity. Even by next Fall, activity probably will still be running below a full-employment rate.

All three major groups of spenders—consumers, private investors, and public authorities—will contribute to the upswing.

Consumer spending should increase very substantially. Outlays for services and nondurable goods will record the biggest absolute gains. Proportionately, however, the jump will be strongest in durables. Auto buying should rebound sharply, and the step-up in new housing foreshadows a good year for furniture and household appliances.

The over-all advance in **private investment** will reflect across-the-board improvement on a year-to-year basis, but not all categories will move upward consistently through the whole period. Looking at the major components:

1. In aggregate, spending for *producers' durables* plus *private non-residential construction* is now on the upgrade and should remain so during the next twelve months. However, the two major variables will follow somewhat different paths. While purchases of equipment ought to rise progressively, the current dip in construction value put in place is unlikely to end until late Spring.

2. On the other hand, outlays for *nonfarm residential construction*, now surging upward, should reach their peak next Spring, sliding off appreciably thereafter.

3. A moderate uptrend in *net foreign investment* appears probable.

4. Total demand will be further strengthened by a step-up in *inventory investment*. In 1958, sellers cut their holdings by about $5 billion. However, restocking is now underway and will proceed at a significant rate in coming months.

Finally, appreciable support will derive from **government outlays.** Spending by states and municipalities will advance steadily through the year, averaging $3.5 billion or more above their 1958 total. The outlook for Federal purchases is more obscure, but these should advance significantly to mid-year, are unlikely to fall thereafter, and could very well rise further if farm output remains high.

EDWIN B. GEORGE, *Director of Economics*
ROBERT J. LANDRY, *Economist*

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curtailed by an expanding labor force and by manufacturers' efforts to step up the productivity of the workers already on the payroll. The low level of unemployment attained during the last boom will not be matched in 1959. Some time in the second half of the year the number of employed will reach a record level.

Wholesale trade expanding

Prompted by rising retail sales, wholesale trade will continue to improve through the first quarter of 1959, passing year-ago levels. Furniture orders, already close to a year earlier, will move up substantially. Bookings in appliances will match year-ago levels some time near the end of March.

The early pre-Christmas rise in orders for women's Spring apparel will be resumed early in January, resulting in moderate gains over last year. The outlook for men's clothing is not quite so good. Volume will remain close to year-earlier levels throughout most of the first half of 1959.

Good news in textiles

This rise in wholesale apparel orders will help sustain the current revival in textile activity through the first months of 1959. In addition, trading in industrial fabrics and man-made fibers will be stimulated by increased output of automobiles.

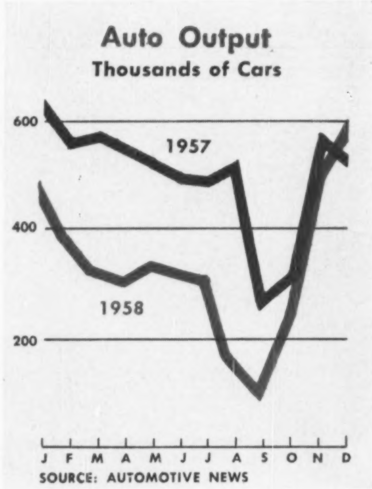
A sustained rise in manufacturers' new orders will continue to bolster the recovery during the first half of 1959. In recent months, orders for durable goods have been recovering faster than they did in 1949 and 1954, and backlogs of unfilled orders have grown somewhat. They will continue to pick up in the months ahead, since the ratio of manufacturers' inventories to sales is currently a good deal lower than in previous months. The ratio is also below the 1954 level, indicating that recovery in new orders will continue to outpace that following the previous recession.

In the automotive group, the only segment of industry not yet feeling a rise, new orders will begin to expand appreciably in the early months of the year.

Although new orders for machine tools have improved recently, there will be no marked rise until well into the second half of 1959 when appreciable gains in capital spending will be felt.

Inventory reaccumulation

Now that the trend in inventory reduction has been halted, business men will begin adding to their stocks. Here again the most noticeable gain will occur in durable goods. Although inventory reaccumulation in the transportation equipment industries will be slower in getting started, it will outpace that of most other industries during the first half of the year. The build-up in apparel, food products, and other nondurables will be more gradual than in hard goods, since inventory reduction



FOR THE *first time in 1958, car output in December exceeded that of a year earlier. This trend will continue in early 1959.*

in 1958 was less severe in these lines. The book value of inventories at the end of 1959 will moderately exceed the comparable 1958 level.

Production schedules will steadily expand to accommodate the increased demand from consumers, business, and the Government. Increased output will be especially marked in the automotive industry. Output schedules of passenger cars have been curtailed recently by labor difficulties and holiday shutdowns, and dealers' stocks have been extremely low. Encouraged by a good initial response to the 1959 models, producers will noticeably step up output throughout the first quarter of 1959. Output for 1959 as a whole will be about 5.6 million cars, compared with about 4.6 million in 1958. Producers will also give more effort to expanding their sales in foreign markets, manufacturing smaller cars, and selling foreign models in this country.

Steel orders mounting

Steel mills are banking on a sharp rise in orders from the automotive industry to boost over-all incoming business early in 1959. The recent rise in orders from appliance makers, farm equipment producers, and the petroleum industry will continue through the first quarter of 1959. During the second quarter, an upsurge in bookings from construction contractors will occur.

Steel output in the first quarter of 1959 will be about 85 per cent of rated capacity. Production could be hindered by labor difficulties later in the year, but output for the year as a whole will be only moderately below the 1955–57 boom levels.

Coal output will pick up in the coming months, and year-to-year declines

will continue to narrow. Current stocks of petroleum are low, which will mean a further rise in output and noticeable gains over last year. There will be more increases in electric power production as consumer and industry consumption rises.

Although business men can look forward to a steady rise in sales in the coming months, the profit picture will not be so bright. Corporate profits will improve, and profit margins will widen somewhat as producers sell more and continue to cut costs, but the levels will remain well below 1957 peaks.

Increased competition in many industries will prompt many business men to hold the line on prices, but retail prices soon will begin to edge up as sales mount. Another stimulant to inflation will be higher Government spending and a sizeable Federal budget deficit.

No rise in food prices

Shoppers can expect food prices to hold at present levels, or even to decline slightly, but these declines, caused by more available supplies, will be offset by higher prices on apparel, household goods, and transportation equipment.

Increased building costs and tighter mortgage money will discourage consumer outlays for home building, and the number of housing starts will dip during the second quarter of the year. The total for the year as a whole will be down slightly from 1958.

The decrease in home building will be offset by increased Government spending for schools, hospitals, and highways, and moderate gains toward the end of the year in private industrial construction. Over-all construction outlays for all of 1959 will hit a record level by moderately exceeding the $47 billion total of 1958.

Producers of building materials are gearing their production schedules close to or slightly above 1958 levels. Manufacturers of plywood, cement, and bricks recently curtailed production in antici-

Weekly Business Signposts

	Latest week	Previous week	Year ago
Steel ingot production.. Ten thousand tons (a)	184	201	137
Electric power output.. Ten million KW hours (b)	135	130	126
Bituminous coal mined. Hundred thousand tons (c)	90	86	89
Automobile production.. Thousand cars and trucks (d)	153	161	163
Department store sales. Index 1947–1949=100 (e)	293	244	285
Bank clearings, 26 cities Hundred million dollars (f)	25.6	21.7	25.0
Business failures...... Number of failures (f)	251	267	276

SOURCES: (a) Amer. Iron & Steel Inst.; (b) Edison Electric Inst.; (c) U.S. Bureau of Mines; (d) *Automotive News*; (e) U.S. Bureau of Labor Statistics; (f) DUN & BRADSTREET, INC. Steel data, for the fourth week of December; automobile clearings and failures for the third week; all others for the second week.

pation of the seasonal decline in construction that will occur from now until Spring. On the other hand, the expected increase in highway building has prompted asphalt producers to expand output in recent weeks, and this will continue in the coming months.

Federal budget in doubt

Although Government officials expect higher than anticipated outlays for defense needs and agricultural payments to push the Federal budget above the current $79.2 billion for the fiscal year ending June 30, 1959, the President proposed a reduction to about $77 billion in the fiscal year ending June 30, 1960. This could be achieved by cutting back outlays for non-defense purposes, especially for farm subsidies, unemployment insurance, and housing, and increases in postal rates and gasoline taxes.

Unsustained by any stimulating news, stock market activity calmed down in mid-December, and the price averages dipped slightly below those of a month earlier. There was a rise in corporation dividends in the closing months of 1958, and the level for the year as a whole was about the same as in 1957. As profits edge up in the coming months, dividend payments will follow suit.

Despite the appreciable gains in industrial production in recent months, the use of bank credit by industry has shown only moderate improvement. The usual seasonal increase occurred in early December, and most banks expect further gains in the coming months.

Although bank lending to business for all of 1958 was down, bank profits were close to 1957. The dip in income from loans was largely offset by increased income from securities, especially additional Government security holdings.

Exports near record

The rise in U.S. exports which resumed in early Fall was sustained through the end of 1958, but the total dollar value remained noticeably below year-earlier levels. Exports for 1958 as a whole were below those of record 1957 but were the second highest in history, according to preliminary reports.

The recent upsurge in imports of machinery and vehicles will continue through the first half of 1959 and help the total dollar volume of general imports exceed year-earlier levels. Appreciable gains will occur in vegetable products, beverages, and textiles. Advance estimates show imports for all of 1958 were only fractionally below 1957.

This report was prepared in the Business Economics Department, DUN & BRADSTREET, INC., by John W. Riday.

Failures . . **Latest trends in business casualties**

Failures Head Downward Again

RESUMING a downward trend, business failures in November fell 12 per cent to 1,121, the second lowest total in 1958. The decline prevailed in nearly all types of business and in most geographic regions. Casualties were 4 per cent less numerous than in the comparable month a year earlier.

The failure rate in relation to the operating business population dipped to 56 per 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book*, and was off fractionally from 1957.

Dollar liabilities, again moving contrary to the number of casualties, ended a three-month decline by climbing 20 per cent to $56.7 million. This volume, the largest since July, exceeded by 7 per cent the total in November 1957. All of the increase from the previous month, as well as from a year earlier, was concentrated among failures involving liabilities of $100,000 or more.

Retailing failures declined most noticeably during November. While lower tolls were noted in all trades, apparel, furniture, appliance, and building materials dealers enjoyed the greatest improvement. Casualties dipped in a majority of manufacturing industries but edged up in iron and steel, transportation equipment, and petroleum. The construction toll held even with October.

In all major divisions of business except service, fewer concerns failed than in the previous year. In manufacturing, the over-all decline amounted to 11 per cent and centered in the apparel and leather industries. Retail trends from 1957 were mixed; decreases in drugs, appliances, and apparel were nearly offset by increases in the food, general merchandise, furniture, and automotive lines.

Six of the nine major geographic regions reported October-to-November declines, with casualties dipping in both large cities and non-metropolitan districts. Regional trends from 1957, however, were less clear cut. While five regions had fewer businesses failing than in 1957, four regions suffered increases ranging from 3 per cent to more than 20 per cent.

FAILURES BY DIVISION OF INDUSTRY

	Cumulative total January–November 1958	Cumulative total January–November 1957	Liabilities in million $ 1958	Liabilities in million $ 1957
MINING, MANUFACTURING...	2495	2203	227.2	181.9
Mining—coal, oil, misc....	79	74	17.2	11.4
Food and kindred products	180	168	16.4	10.8
Textile products, apparel..	463	457	31.7	27.5
Lumber, lumber products..	495	458	29.8	23.3
Paper, printing, publishing.	172	127	8.2	9.4
Chemicals, allied products.	59	54	3.9	5.4
Leather, leather products..	92	65	12.4	6.5
Stone, clay, glass products.	60	52	10.5	2.9
Iron, steel, products......	165	104	16.6	27.2
Machinery..............	264	224	27.7	23.5
Transportation equipment.	69	66	15.2	7.2
Miscellaneous............	397	354	37.6	26.8
WHOLESALE TRADE.........	1313	1140	71.4	72.4
Food and farm products..	307	262	18.3	17.2
Apparel................	59	41	2.7	2.5
Drygoods..............	43	30	1.3	1.1
Lumber, bldg. mats., hdwre	164	136Ⓡ	11.7	8.3Ⓡ
Chemicals and drugs......	45	40Ⓡ	1.2	1.8Ⓡ
Motor vehicles, equipment.	61	69Ⓡ	1.9	3.1Ⓡ
Miscellaneous............	634	562	34.2	38.4
RETAIL TRADE.............	6999	6381	210.9	170.8
Food and liquor.........	1041	1007	23.7	22.4
General merchandise.....	270	251	11.0	10.9
Apparel and accessories...	1082	1060	28.5	21.9
Furniture, furnishings.....	987	934	42.7	34.9
Lumber, bldg. mats., hdwre	464	438	14.6	12.8
Automotive group........	1012	806	36.2	20.2
Eating, drinking places....	1335	1173	35.4	26.5
Drug stores.............	154	152	3.8	3.6
Miscellaneous............	654	560	15.0	17.7
CONSTRUCTION............	1986	1931	105.1	104.6
General bldg. contractors..	811	740	56.5	61.2
Building subcontractors...	1065	1075	37.7	34.3
Other contractors........	110	116	10.9	9.2
COMMERCIAL SERVICE.......	1089	1004	56.7	40.3
TOTAL UNITED STATES....	13,882	12,659	671.2	570.0

Liabilities are rounded to the nearest million; they do not necessarily add up to totals.
ⓇRevised.

THE FAILURE RECORD

	Nov. 1958	Oct. 1958	Nov. 1957	% Chg.†
DUN'S FAILURE INDEX*				
Unadjusted.......	57.0	54.5	57.7	—1
Adjusted, seasonally	55.9	57.4	56.0	—0.2
NUMBER OF FAILURES	1121	1271	1173	—4
NUMBER BY SIZE OF DEBT				
Under $5,000.....	158	232	160	—1
$5,000–$25,000....	528	586	580	—9
$25,000–$100,000..	321	360	335	—4
Over $100,000....	114	93	98	+16
NUMBER BY INDUSTRY GROUPS				
Manufacturing....	190	215	213	—11
Wholesale trade...	108	124	114	—5
Retail trade......	550	657	559	—2
Construction.....	176	176	194	—9
Commercial service	97	99	93	+4
LIABILITIES (*in thousands*)				
CURRENT..........	$56,718	$47,268	$52,899	+7
TOTAL............	57,393	47,298	53,245	+8

*Apparent annual failures per 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book*.
†Percentage change, November 1958 from November 1957.

In this record, a "failure" occurs when a concern is involved in a court proceeding or in a voluntary action likely to end in a loss to creditors. "Current liabilities" here include obligations held by banks, officers, affiliated and supply companies, or the governments; they do not include long-term publicly held obligations.

This report was prepared in the Business Economics Department by Rowena Wyant.

Business Budgeting Today: A New Survey

ALTHOUGH men who "don't believe in budgets" are rapidly disappearing from the U.S. business scene, executives who regard budgetary matters with any real enthusiasm are still a lonely minority.

The reasons aren't hard to find. True, the budgetary systems in use today, when correctly applied, can make it possible for management to plan ahead for definite profit objectives and take corrective steps when any part of the organization veers from the path toward contemplated goals. But they often fail to work as well as might be expected from their technical excellence.

Why is this? A new study suggests a simple answer: budgets, however well thought out, just won't work automatically, untouched by human minds. Like the occasional plane or train accident that occurs despite mechanical safety devices, the failure of good budget practices to produce expected results can be laid largely to "the human factor"—and, in the case of budgets, this means indifference or resistance on the part of key personnel.

Controlling the "human factor"

Fortunately, tested solutions for this part of the problem also exist—quite aside from the obvious ones of dismissing or reprimanding the recalcitrant, courses generally not open to the staff men who are primarily responsible for the development of budgets.

These are some of the conclusions to be drawn from a survey of budgetary practices conducted by the Controllership Foundation, Inc., research arm of the Controllers Institute of America. More than 400 companies believed to have good systems of planning and control were selected for study. In 35 of these companies, the research was carried out by interviews, and the remainder were surveyed by mail questionnaire.

A budget-minded majority

More than 90 per cent of these companies incorporate definite objectives into a detailed budget. Since they include concerns in many different industries, with from less than 1,000 to more than 100,000 employees, it is evident that this form of planning and control is applicable to practically every company, no matter what its size or field of operation. A far larger proportion of companies use budgets, in fact, than utilize such control tools as breakeven analysis and return on capital invested, though many of the group use all three.

Among industries, the major difference encountered is the length of the budget period. A large proportion of the retail and wholesale companies use a three- to six-month planning period for budgetary purposes, while most of those in other fields use a year. (This is, of course, for detailed short-run planning. More than 60 per cent of the companies also have long-range plans, some for as long as ten years.)

Technically, the most difficult budgeting problem is the development of an accurate sales forecast—a necessary basis for any realistic forecasting of profit. Nevertheless, many companies report that they are able to estimate actual total sales within plus or minus 5 per cent, although predicting the share each territory and each product would contribute to the total is more difficult. In the latter case, the actual may differ from the budgeted volume by as much as 25 per cent.

Sales forecasting techniques range from estimates made by salesmen and executives to detailed forecasts based not only on estimates of company sales, but on forecasts of economic conditions, industry sales, company share of the market, and other criteria. General economic forecasting is, as might be expected, more common among the larger companies than among the smaller ones. Among industries, it is most commonly used by retailers and wholesalers, many of whom operate on close profit margins.

Where salesmen and sales managers are asked for their estimates, it might be supposed that the "human factor" would lead them to understate the future sales volume in order to make their own year-end showings look good by comparison, or that they would be mindful of the day of reckoning and try to be as factual as possible. This is not always the case, however. One company found a sales manager who consistently overstated the amount he expected his men to sell because, as he told the budget coordinator, he thought "the sales forecast ought always to show a nice profit."

Keeping tab on variables

Operating expenses are somewhat easier to calculate, though some companies find it difficult to separate variable and fixed components of "semi-variable expense." Some companies using variable budgets do this by judgment alone, but other methods are also reported. For example, one treasurer says:

> The budget department keeps graphs on each factor of expense. The base line of the graph is direct labor dollars, while the vertical line is dollar volume of expense. Expenses are plotted on the graphs monthly. The graphs are used during the preparation of the budget to determine fixed and variable portions of expense allowances for each department.

Another method, known as "standby costs," is to estimate the amount of each particular expense needed to keep the plant on a standby basis if it were shut down completely, and consider this the fixed portion of the cost. Finding the difference between this and the estimate of total expense at the budgeted level of activity gives the variable portion, and the variable rate can then be computed.

The most important tested technique for dealing with the human factor may

Where Budget Objectives Are Applied

Areas where definite budget goals are established	Percentage of companies: Manufacturing — Durables	Manufacturing — Nondurables	Public utilities, Transportation	Wholesale and Retail	Finance and Insurance
Sales	99	98	98	100	56
Expenses	85	87	85	100	100
Production	85	83	73	25	11
Capital expenditures	94	95	100	94	33
Raw material (purchases)	49	49	42	31	—
Research	83	83	40	25	22
Advertising	94	93	98	100	89
Cash	89	82	95	100	33
Share of market	46	40	18	44	33
Return on capital employed	48	52	73	56	11
Credit and collections	52	39	48	50	11
Number of employees	45	35	63	56	100

be summed up in the word "participation." Results of the survey indicate that, at least in well-managed companies, top management seldom hands down final departmental budgets from on high with a notation to the effect that "this is it." Some participation by middle and often lower management is likely to be encouraged.

There are, however, degrees of participation. In some companies, budgets are drawn up by the financial department and higher management, and then are presented to department heads for comment and suggestion before final approval. In others, the budget-making may start as far down the line as the foremen, who—with the assistance of staff men—draw up goals and objectives for their own operations. Budgets then move up the line for additions and screening at higher and higher levels until they reach the top.

This type of participation, the study finds, tends to produce the strongest motivation to make the budget work. Moreover, if there is, as there should be, discussion at all levels between line and staff and superior and subordinate of budget proposals, of performance against budget, and of any revisions that occur, the entire organization becomes familiar with management's goals and expectations. Many companies believe, in fact, that the budget should be considered a primary tool of communication.

Top-level support needed

But, as with all company programs, the best techniques will not work without top-management support, and that is not always forthcoming, at least not to the extent many controllers and budget directors believe it should be. As one of the men questioned during the survey reports: "A major problem is keeping top management's interest up during periods of good operation. There is a tendency to ride along with the tide and to overlook moderate budget variations. Have to keep selling the budget concept."

Judging from the results in some companies, however, it is apparent that if top management really wants good budgeting, the techniques for successful use of budgets as instruments of planning, control, and communication already exist.

A complete report of the Controllership Foundation's study has been published in the book, *Business Budgeting: A Survey of Management Planning and Control Practices,* available at $12.50 from the Foundation, 2 Park Avenue, New York 16. The study was conducted and the report prepared by Dr. Burnard H. Sord and Dr. Glenn A. Welsch, both of the University of Texas, under the general direction of Dr. Herbert F. Klingman, the Foundation's director of research.

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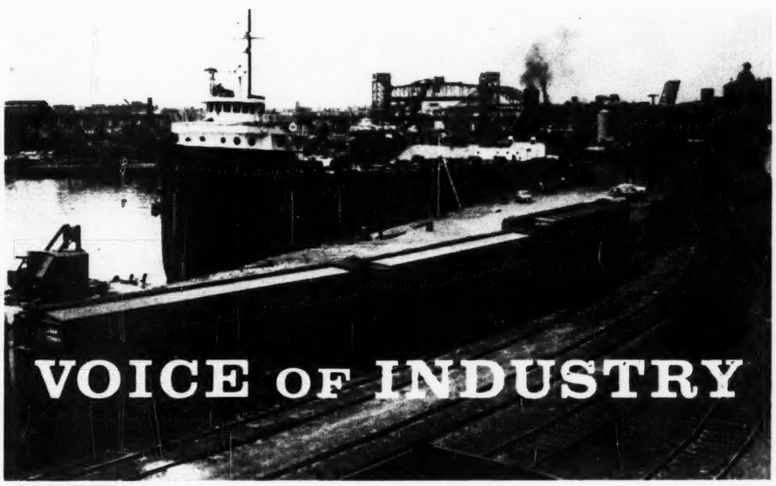
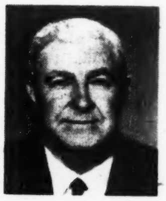


The '59 Steel Market: Rising Industrial Demand

ALSO: ***Machine Tools for Defense; Taking a Chance on Change; Quality vs. Equality; Gains from Giving***

A "Margin of Safety" in Steel Capacity

T. F. PATTON, *president, Republic Steel Corp., before the National Industrial Conference Board.*



There seems little doubt that a broad-based recovery is underway. By mid-1959, led by non-durables and services, industrial production and gross national product will probably set new records.

The steel industry will share in that rise. True, steel production will be considerably under capacity in 1959, but "capacity" to the steel industry today, for the first time in many years, represents a safe and desirable margin over expected normal demand.

The steel industry is unlikely to need massive additions to its capacity before the early or mid-'60's. Many other industries are in the same position, and industrial expansion in general will tend to be slow until demand, spurred by population growth and family formation, begins to press against the capacity. This condition will tend to pull against any sharp rise in the sale of producer durables.

On the other hand, we can expect an acceleration in the replacement of equipment, and in the purchase of new types of equipment that raise productive efficiency. This condition will create a strong and rising demand for producer durables.

Balancing these two forces against one another, we can expect a modest rise in spending for plant and equipment, and a corresponding rise in the sale of producer durables. This, in turn, will stimulate the steel market.

Two other conditions will have a strong impact on steel sales. The first is that inventory liquidation will shift to inventory buildup in 1959. In terms of gross national product, we expect a shift from a $9 billion annual rate of inventory liquidation in the first half of 1958 to an inventory accumulation that should reach an annual rate of $5 billion in 1959.

A second factor is the expected improvement in the sale of consumer durables in line with rising income payments. Although no records are expected in consumer durables output, even a modest increase will give steel a boost.

Adding together the trends in key steel-using industries and their prospects for the coming year, we come up with a picture of rising steel production in 1959. Total ingot production is likely to be over 102 million but under 110 mil-

lion ingot tons—a gratifying 20 per cent to 30 per cent increase over the 85 million tons estimated for 1958.

An Industry and a Nation Unprepared

ALFRED V. BODINE, *president, The Bodine Corp., before the National Machine Tool Builders' Association.*

It is my firm belief that the machine tool capacity of the United States has shrunk below the margin of national safety. If an emergency arose today, it would require months of expansion before our industry would be able to cope with it. Some machine tool companies have already gone out of business, and many others are shifting production capacity from the United States to foreign countries.

Today we have once more in Washington the same old concept that, for national defense, machine tools are of secondary importance. This results from a theory that the next conflict will be fought with nuclear weapons and will be over in twenty minutes.

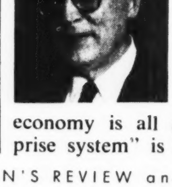
I challenge that theory. And I say that in my opinion the concept that we need prepare only for a nuclear war is seriously jeopardizing our safety.

To be properly prepared, we should be ready to produce at a moment's notice the requisite quantities of weapons to be used in limited warfare. That sort of production requires machine tools.

Is our industry, enmeshed in the web of reciprocal trade and low foreign wage rates, to go the way of watches and bicycles? Or is it, like shipbuilding and aircraft, to be regarded as a vital arm of national defense, and its capacity maintained accordingly?

How Profits Spur Constructive Change

FREDERIC G. DONNER, *chairman and chief executive officer, General Motors Corp., at the GM Motorama.*



It seems to me that the essential quality of a dynamic economy is change—constructive change. And this is the essence of "enterprise," the word we often use to describe what our economy is all about. A "free enterprise system" is a system that encour-

ages and rewards "enterprising" people—people who are not content to remain static, who welcome and initiate innovation and worthwhile change.

At the very heart of this system are two powerful forces—the hope of profit and the discipline of competitive markets. The hope of profit is the mainspring of constructive change. Competition is the spur that transforms new ideas into new products at the lowest possible price.

However, our dynamic growth would not have been possible without risk to the individual enterprise. The process of change is the process of risk taking. Before any new idea, transformed into a product or service, can find its way to the market place, an investment of time, effort, and money is required. Often the investment in all three is very large. For every product which finds acceptance in the marketplace, many are offered and cast aside.

Competition insures the spread of change. But it is profit—representing potential reward to the successful innovator—that leads to the risk taking which makes the process of change and growth possible. It is the responsibility of management to take risks in the hope of profit by bringing new products and new services to the customer.

"Some Are More Equal than Others"

BENJAMIN F. FAIRLESS, *president, American Iron and Steel Institute, before the San Francisco Regional Technical meeting of the Institute.*

Our nation is faced with a dangerous drift toward mediocrity. It comes at a time when we are in a race for quality that is probably one of the most vital in human history.

We know that to win this race we must encourage better-than-average individual performances by everyone. But, while we believe the best product should win and reap the greatest reward, our free system has within it a paradox when this idea is applied to people. On the one hand, we say, "Let the best man win." But, on the other hand, we give the runners-up, who are naturally more numerous, great leeway in rewriting the rules of the game.

So it boils down to an ancient question of quality versus equality. There would be very little danger if those who voted the new rules attempted only to make the game more fair. But, when the rules are changed so that excellence is penalized, when distinguished achieve-

A banker takes a hand

When the siren screams and the volunteer firemen scramble, there's probably a banker in the brigade.

And for good reason.

To understand and serve his community, a banker has to know its people and its problems first-hand.

Living and working among depositors and customers increases his ability to help a community financially. Right in the thick of things he's better qualified to put the community's money to work wisely and profitably.

By participating and serving at the same time today's banker is well qualified to give sound assistance when asked to weigh a personal financial problem, or advise on business or civic money matters.

Willingly accepting the many responsibilities his community gives him, and getting to know his neighbors to the core, the banker steadily builds a more useful bank. And usefulness is what makes commercial banks more important day by day to the whole American economy and the American people.

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ment is frowned on, and when our outstanding and most talented individuals are frustrated by shabby rewards, then all of us who have a stake in preserving our free society must protest.

We have done this rule changing, I suspect, at least partly because of a confusion about the meaning of equality in a free society. On many things about equality we are in general agreement. But, all men are *not* created equal in ability, in what moves them to do their best or in the possible levels of achievement they may reach.

I hope that our nation will halt the trend toward acceptance of the mediocre. I believe that we can do it. In our time, even the socialists have to admit that whether it's products, services, areas, or people, "Some are more equal than others."

Exercising Corporate Citizenship

EDGAR M. BRONFMAN, *president, Joseph E. Seagram & Sons, Inc., before The Greater New York Fund.*

Democracy's leaders early came to the realization that a free society must provide education, care for the sick, homes for the aged, and shelter for the needy, or mankind could not remain free.

As the free enterprise system matured, two great new forces emerged to assume their roles on the American scene. One was the corporate entity, the other organized labor. And as they in turn matured, they each developed a philanthropic consciousness.

In the development of the corporation from the apparent cold and aloof entity of yesteryear to the enlightened, community-minded citizen of today, some tribute must be paid to men like Rockefeller, Ford, Carnegie, Mellon, and others, who set up great foundations to benefit mankind. These pioneers showed the way to the managements of today's corporations to community citizenship. Indeed, it took examples such as those, and much vision on the part of managements, to bring about the modern phenomenon called "corporate giving." For it must be remembered that directors are the trustees for the shareholders and must at all times be conscious that they are acting in a fiduciary capacity. Nonetheless, modern managements have come to the realization that a healthy community, an educated community, and a free community, is the only real atmosphere in which their enterprises can prosper.

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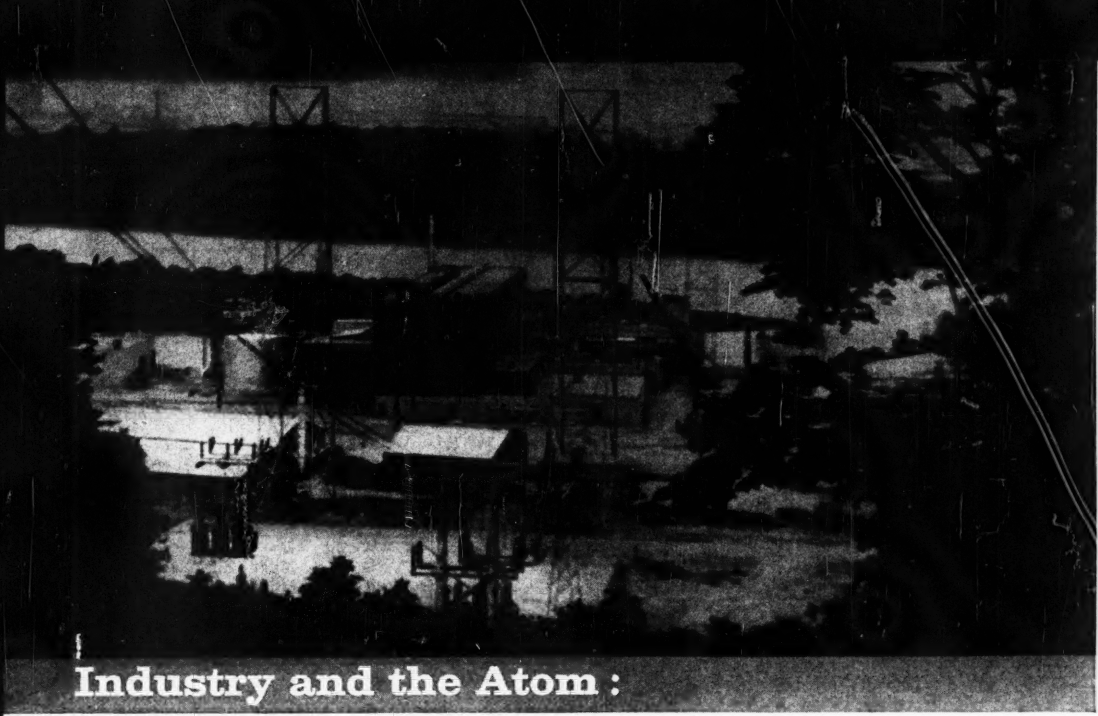

WORLD'S *first full-scale nuclear power plant exclusively for civilian needs. The Westinghouse reactor produces steam power for the Duquesne Light Company of Pittsburgh.*

WHAT PRICE NUCLEAR POWER?

ERNEST LE MONNIER

Efforts to harness the atom to the wheels of industry are running up against technical obstacles and high costs that could delay full realization of the dream for quite a while to come.

NUCLEAR POWER, conceived sixteen years ago last month in a University of Chicago laboratory, is passing through a troubled adolescence. A growing, maturing, and potentially indispensable force for sustaining the world economy, it is, nonetheless, still industry's most expensive "dependent" and one which isn't likely to become self-supporting for five or ten more years.

How does nuclear power stack up now, and what can industry expect from this slowly developing giant in the future? Here are some of the hard facts:

- Eight nuclear power plants in operation, fifteen more building or projected for completion by 1964. Total capacity: about 1.3 million kilowatts of electric power.
- Nuclear energy at the power station busbar today costs anywhere from 35 to 65 mills per kilowatt hour. Steam power ranges from 4 to 10 mills per kilowatt hour at most busbars.
- Nuclear power plants completed or building are estimated to cost about $450 per kilowatt of capacity. New steam stations average around $150 per kilowatt.
- The Atomic Energy Commission has spent $1.4 billion since 1950 in the development of nuclear reactors. By the end of the year electric utilities estimate they alone will have spent $140 million for nuclear power.

Obviously, nuclear power is a costly affair, and it is a long way from being competitive with other sources of energy.

This doesn't mean that the bright dreams of cheap and abundant atom power are fading or that the bubble has burst. But the dream is changing. No-cost power is still only a fantasy, and competitive nuclear power is on its way to becoming a reality a great deal more slowly than had been anticipated.

Costs soar, enthusiasm wanes

Until early in 1957, recognized experts were predicting an onrush of nuclear power to begin in the early 1960's. Their enthusiasm waned when the first power-producing reactors were completed and went on the line, and the facts on nuclear-power financing were in.

- North American Aviation, Inc., completed its sodium-graphite reactor nearly a year later than scheduled because of technological troubles. The reactor, which began operation in April 1957, cost $9 million, nearly double the original estimate. Power produced: 6,500 kilowatts.

• The first large-scale power reactor (60,000 kw), which had been under construction at Shippingport, Pa., since early 1954, also was to begin operation in early 1957. It actually went into operation on December 2, 1957. By then it had cost $55 million —$17.5 million more than originally estimated. Power produced by the reactor cost somewhat more than 55 mills per kilowatt hour and was sold as steam at 8 mills per kilowatt hour to the Duquesne Light Company which put up about $22.5 million to build the conventional power plant.

• Argonne National Laboratory's experimental reactor started in late 1956. It cost about $4.4 million to build (original estimate: $3.6 million). Its 5,000 kilowatts of power cost an estimated 35 to 52 mills per kilowatt hour.

• Another experimental reactor due in 1956 was delayed by corrosion troubles. While its cost rose from $1.8 to $3 million, start-up was delayed until late 1957.

• Construction costs on a fifth reactor rose from $15 million to $29 million before construction began.

All five reactors belong to the so-called U.S. five-year program of atomic power development that started in February 1954 and was scheduled to wind up by the end of 1958.

Economic setback

The dreamers of an atomic future got an awakening jolt when the economy balked in mid-1957 and refused to follow the smoothly beaten path of statistical uptrend. The business recession and defense cutbacks, added to rising nuclear costs and increasing technological difficulties, slowed atomic development still more. A number of newly-created atomic divisions and nuclear companies were forced to curtail or cease operations.

By November 1957, Bell Nucleonics, a division of Bell Aircraft, went out of business. AMF Atomics, a division of American Machine & Foundry Company, bowed out of the power reactor business temporarily—returning in 1958 on a contract to build a power reactor for Cuba. In the meantime, it stuck to the production of research reactors—of which it had sold twelve at last count.

Others cut down their staffs of nuclear engineers, probably the most precious commodity in the nuclear market. Foster Wheeler Corp., for one, reduced its nuclear division from 60 to twelve when the AEC turned down its costly proposal for a nuclear project. General Electric, with no work in sight, shook up its nuclear staff. So did Sylvania-Corning, Walter Kidde Nuclear Laboratories, Pratt & Whitney's nuclear aircraft division, and the Nuclear Development Corporation of America.

By the end of 1957, two others, Daystrom's nuclear division and Nucledyne Corp., a subsidiary of Cook Electric Company, had fallen by the wayside, and Sylvania-Corning had cancelled plans for a large nuclear project. (Later, however, Cook Electric stated they were planning to remain in the nuclear power business.)

Was this sudden nuclear power "fallout" merely symptomatic of chronic recession ills and defense cutbacks? Or does the real cause lie deeper?

At the core of the problem are three basic economic facts: (1) the United States is energy rich; (2) the U.S. economy is based on competition; and (3) military and civilian uses of the atom's power are inseparably linked.

"The world's needs for power are growing and will continue to grow," says the president of the Southern Coal Producers Association, Joseph E. Moody. "Yet there is enough coal in this country alone to last for several hundred years, to say nothing of oil and gas." Taking a more conservative approach, Marling J. Ankeny, director of the U.S. Bureau of Mines, has stated, "Adequate coal reserves

One Company's Plan for Nuclear Progress

General Electric recently presented to the nation's utility industry and the Government a two-part plan to make nuclear electric power economically competitive with conventionally produced power in the United States by 1965 through intensive development of the boiling water reactor.

One part of the plan, called Operation Knowhow, proposes that GE undertake the mass production of a number of small boiling water reactor plants, duplicates of the one now being operated by Pacific Gas & Electric, for purchase and operation by utility companies throughout the country. The plants would be designed to help utilities train personnel, get acquainted with atomic operating problems, and set up an atomic public relations program.

General Electric is prepared to build 25 of these plants at a cost per unit of about $4.5 million, with delivery to begin in 1960. Each plant would produce 5,000 kilowatts of electric power. GE also suggests the utilities buy an additional 25 small reactors from other producers.

The second part of the plan, Operation Sunrise, would bring into operation by 1962 five "developmental" boiling water reactor power plants. These would be followed in 1965 by three "evolutionary" plants which would be economically competitive in higher fuel cost areas.

The evolutionary plant would produce power for about 8.5 mills per kilowatt hour. By 1970, GE believes, the United States would have "target" plants producing power for 6.5 mills per kilowatt hour which would be competitive with 25 per cent of the fossil-fuel power plants being installed.

Cost of Operation Sunrise would be $128 million over a seven-year period, excluding cost of plants—which would be economically competitive. The program would be financed largely by industry, but GE is said to be negotiating for a U.S. Government contribution of $21 million. GE says it expects to put $7 million of its own funds into research and development work on the Sunrise plants.

Two of the "first-generation" nuclear power plants are already in operation, the Vallecitos Boiling Water Reactor operated by GE and the Pacific Gas and Electric Company near Pleasanton, Calif., and the Experimental Boiling Water Reactor developed by the Argonne National Laboratory at Lemont, Ill. The large-scale Dresden Nuclear Power Station near Chicago, being built by GE for the Commonwealth Edison Company and the Nuclear Power Group, will be in operation by 1960.

Private utilities are said to have some reservations about GE's program because it might mean that a lot of business would go to one supplier and because later research may show that the boiling water reactor is not the best type.

Francis K. McCune, G-E vice president and general manager of the company's Atomic Products Division, has stressed that the proposed program is not intended to supplant development programs for other types of reactors. General Electric is actively continuing work on other reactors but has selected the boiling water type as today's most promising candidate for "development in depth" to reach competitive economic status in the shortest possible time, McCune says.

are readily available to meet the anticipated growing needs of the electric power industry and all other demands during the next 20 to 25 years."

In 1955, central power stations consumed only about one-third of the bituminous coal mined. And year by year central stations have made thriftier use of coal. In 1907, it took 5.4 lb. of coal to generate a kilowatt hour of electricity. In 1957, central stations averaged 0.93 lb. And J. H. Harlow, chief mechanical engineer of the Philadelphia Electric Company, predicts that new stations built in 1980 will use only 0.60 lb.

Increasing efficiency spells steady lowering of costs and prices. It means stiff competition for nuclear power —when competition determines survival. Years of experience with working nuclear power reactors will be needed to meet, then beat, fossil fuel efficiency and costs.

Atoms for production

However, a recent study of the productive uses of nuclear energy made by the National Planning Association spotlights some promising opportunities for using nuclear energy outside the power field.

In the economy as a whole, NPA points out, five-sixths of total energy is consumed for purposes other than electric power generation. Thus, even excluding possible uses of nuclear power for house heating and in transportation, the area of potential application is quite large.

In 1954, manufacturing industries consumed the equivalent of 350 million tons of coal for generating process-heat. More than one-third of it was consumed by industries requiring low-pressure steam, which can be generated by many types of nuclear reactors now in existence or under construction. For these industries and for industries in certain geographic areas, such as New England and the Great Lakes region, reactor-produced process heat might soon become economically feasible.

Savings would be small

Still, the survey points out, in most industries heat energy represents a relatively small portion of total manufacturing cost, and even if it should become quite inexpensive, it does not appear that nuclear energy could bring about substantial over-all cost reductions.

Nuclear energy's best chance of competing with conventional fuels lies in those industries where low-pressure steam is used in large blocks, where productive processes are continuous, and where plants operate on a year-round basis. Unless other uses for energy (in the form of heat, power, or radiation) can be found, the disadvantages of the expected heavier fixed charges of reactors, as compared with conventional boilers when operated at a low load factor, cannot be overcome, even in regions with fairly high fuel prices.

Certain industries seem to be especially promising as potential markets for nuclear reactors, according to the NPA survey. Chief among these is the paper industry. But since this industry also uses substantial amounts of electric power, special reactor designs to produce both types of energy will be necessary.

Chemical industries which use large quantities of low-temperature process-heat for cooking, distilling, and drying operations also could benefit from the use of large nuclear reactors, the survey finds. Moreover, since chemical industries generally require large quantities of process-heat in individual establishments and operate at a high plant factor, nuclear energy will have a better chance of competing with conventional fuels than in most other industries.

In individual food processing industries, the survey found the best opportunities for nuclear energy appear to be in corn refining and in malt and distilled liquor establishments. Large canneries which operate all year-round also could be potential users of this energy. Rubber, petroleum, synthetic fiber, and probably

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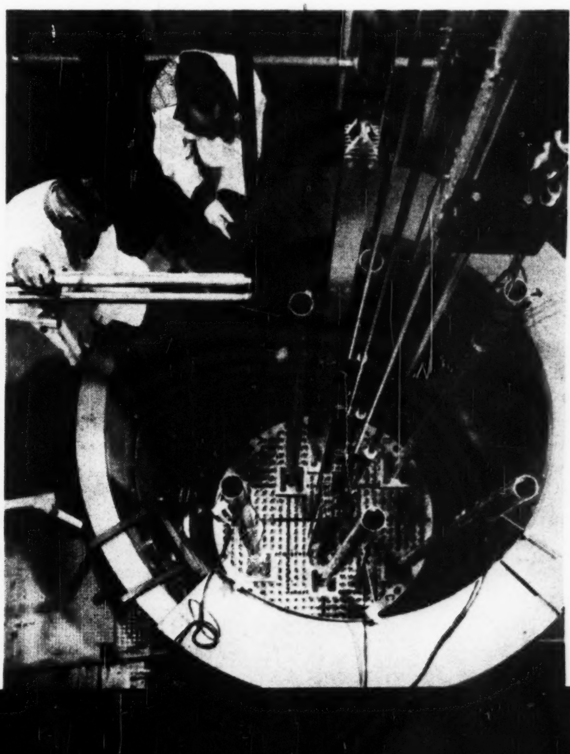
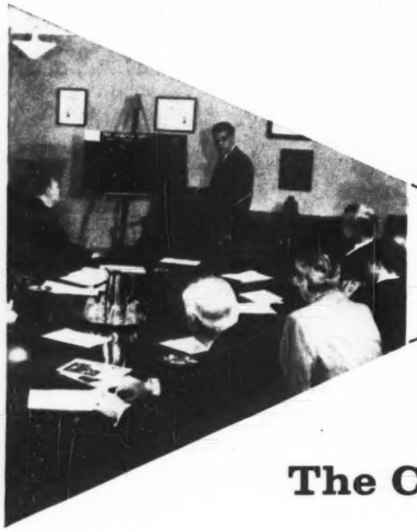
FLOODLIT SPHERE *will house Dresden Nuclear Power Station for Chicago's Commonwealth Edison Company in Morris, Ill. A G-E boiling water reactor will produce 180,000 kilowatts of electricity.*

CRITICAL EXPERIMENT *reactor designed by Babcock & Wilcox as part of its effort to design and build a propulsion unit for an atomic merchant ship and a 255,000-kw electric power station.*





Integrated Marketing

The Customer Knows Best

LOUIS A. ALLEN

The "ask the man who buys it" approach has put the marketing function in new perspective. Here's how some companies use the new marketing concept to improve their products and increase their sales.

SELDOM HAS American business indulged in such critical self-examination as is prevalent today in the marketing field. Small retailers and large international corporations alike are conducting searching inquiries into why people buy, what a company can do to maintain leadership in the marketplace, and how customer loyalty can be developed.

There are many reasons for this upsurge of interest in marketing. The principal spur is the sharp increase of competition in all lines. A new emphasis on the development and introduction of new products closely tailored to consumer preferences has caused the rapid obsolescence of many items long considered standard. Rapid technological changes have offered the customer new alternatives for spending his money. And, finally, armed with new tools of market diagnosis, many chief executives have been able to visualize for the first time the real sales and profit potentials of their product lines and have been stirred to vigorous action.

There is general agreement on how these new challenges can be met. Many companies have been quick to recognize that they have not equipped the managers of their sales effort with the administrative tools they need to do an effective job. The reorientation which has resulted has brought about a beneficial integration and refocusing of the sales effort.

Don't overdo it

Before exploring the principles behind this new marketing activity, we should first note the danger of carrying proposed solutions to undesirable extremes. Even now some overenthusiastic proponents of the new marketing concept are sowing seeds of future trouble.

The chief danger for many companies is that, in shifting the spotlight to marketing, other important functions may be pushed into the shadow and their rightful importance subordinated. Some enthusiasts, for example, recommend that the company president be clearly identified as the marketing chief and that manufacturing, engineering, finance, personnel, and other departments be primarily concerned with carrying out the marketing effort. Others suggest the upgrading of the top marketing position to the executive vice presidential level and urge the promotion of key marketing men to the chief executive spot.

The well-balanced team

Though well-intentioned, these recommendations are too wide and sweeping for general endorsement. In those companies where marketing has been kept in the back cupboard, it is desirable to give it its rightful place in the parlor. But marketing is still only part of the team, and its role will vary with the company, its stage of growth, the nature of its products and markets, and other conditions.

Marketing must strike a proper balance with other functions of the business. The president is no more, or less, chief marketing executive than he is chief researcher, chief manufacturer, or chief financier. Some companies that today put the major emphasis on marketing probably will find their needs will change with time and circumstances. There is every reason to believe that if a single function, even marketing, dominates the entire

business for too long it will jeopardize the company's long-term success. Marketing and innovation vary in importance with different companies at different times, and there is no one formula that will dictate their proper weight and placement.

A reevaluation of what part of its total mission a company can rightfully expect to accomplish through its marketing function has for the first time made it possible for marketing to assume its full role on the administrative team.

How the concept was born

A quick glance backward will show how this realignment came about. Before World War II, the chief concern of the sales executive was to develop a sales attack that would persuade people to buy the company's product. He was in direct command of the field sales force and operated on the same level as advertising, sales promotion, and market research. It was as if the financial functions were fragmented into accounting, budgets, and taxes, with no controller to head them up. The logical move was to put all the players on the same team. Once this was done, the marketing function assumed its true importance.

To use the marketing philosophy effectively, it's necessary to understand its new scope. Although many interpretations have been offered, the new approach is essentially a reorientation of marketing, and of the company through marketing, in terms of the customer. Marketing has three purposes, all directly concerned with the *customer*.

The first purpose of marketing is to determine potential need and demand for the company's products. As Robert M. Nelson of Armco Steel Corp. points out, the company must begin by finding out what the customer wants in the product, what price he is willing to pay, and when he wants it.

Here is how Armco applied this concept to the marketing of steel for automotive mufflers. Knowing the cold rolled steel used for mufflers was inadequate, Armco employed market research to find out what customers wanted in their mufflers. It then pushed product development and manufacturing to come up with an aluminized steel application that doubled the life of the product. After testing to make sure the new product met customer requirements, Armco was able to get advertising, sales, and promotion programs under way with excellent results.

Customer orientation means looking at the world from where the customer sits, and not through the binoculars used by research, production, or sales. Kraft Foods, for example, made cheese with a sharper flavor because consumer surveys showed that was how the customer liked it. Aluminium Limited introduced an entirely new shape of aluminum ingot—as precedent-shattering a move as changing the convolutions of a pretzel—for customers who wanted something the forks of a lift truck could handle more easily. Koppers Company realigned sales, advertising, sales promotion, public relations, and personnel development to cater more precisely to customer needs.

Managing the sales effort

The second major purpose of marketing is to persuade customers to buy the company's product. This vital selling phase is newly oriented to specific customer needs—and, most significantly, it no longer is merely a frontal assault upon the customer, designed to sell him by persuasion and repetition. The sales effort today is managed—planned, organized, and controlled in every aspect of its operation.

To implement managed selling, companies are learning to forecast, to develop objectives and policies, to program, schedule, and budget every phase of their field sales activities. Profit and loss targets for individual salesmen are set and salesmen's assignments are planned to insure optimum territorial coverage.

Improving the yardstick

Volume traditionally has been the yardstick against which sales effort has been measured. But volume alone does not always produce profits. The new approach has been to plan sales so that volume is emphasized only when there is a reasonable chance for a corresponding increase in profit returned.

Consider the case of Ditto, Inc. Surveying its field sales results, the company found volume alone often became an expensive luxury. Two of the branches, for example, had each increased volume 30 per cent. At the same time, one improved profits by

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Is Your Marketing Integrated?

Many company executives find it difficult to determine whether or not their marketing effort is aligned in accordance with new concepts of integration. If most of your answers to the following questions are in the affirmative, you can be sure you are on the right track.

☐ Is the top marketing executive, rather than the advertising director or your advertising agency, accountable to the president for the success of advertising programs?

☐ Do you have a staff group reporting to the marketing head which provides advice and service to all marketing managers in analyzing market opportunities, developing sales and distribution objectives, policies, programs, and methods?

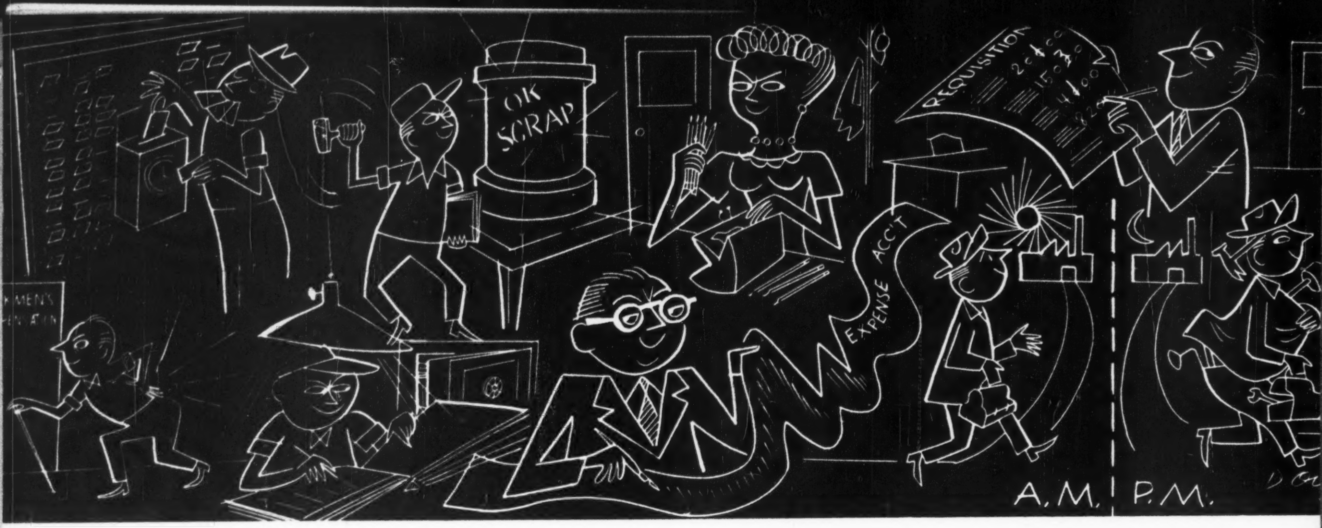
☐ Does the top marketing executive devote at least 80 per cent of his time to forward planning, marketing organization, control of the total marketing effort, and motivation and development of his direct subordinates, rather than to field operations or direct selling?

☐ If your company has at least four product or geographic divisions and more than $200 million in sales, do you have a corporate specialized staff marketing manager as well as division marketing groups?

☐ If you use one sales force to sell three or more distinct products or product groups through different distribution channels, and the volume for each is $8 million or more, do you use product managers to back up the efforts of your field sales force?

☐ Has the top marketing executive experience and training in one or more functions other than supervision of direct field sales?

☐ Does the president, rather than the top marketing executive, authorize all sales objectives, policies, programs, and budgets that apply to the sales efforts or two or more operating divisions of the company?



Era of the Dishonest Dollar

ALFRED G. LARKE, *Employer Relations Editor*

Faced with a staggering bill for employee dishonesty, U.S. business decides it's time to tighten up controls, add an extra ounce of prevention.

IN ITS current efforts to ferret out waste and inefficiencies which were swept under the carpet during the lush years, American business has uncovered a multi-million-dollar profit drain—employee dishonesty.

Employers, who once took a philosophical view of the age-old problem, today are convinced they must clamp on controls to detect wrongdoing which is contributing to narrowing profit margins and to halt what many believe to be an upswing in the incidence of in-plant fraud and theft.

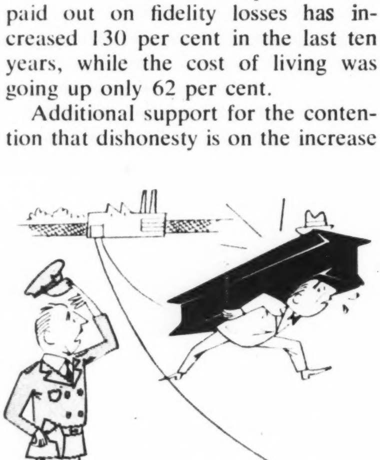
Insurance company investigators estimate that U.S. business lost close to $1 billion last year through pilfered cash and products, padded expense vouchers, manipulated inventory and accounts, diversion of material through fake scrapping, kickbacks from suppliers, padded payrolls, and fraudulent claims for unemployment insurance and workmen's compensation.

Richard L. Bollard of Liberty Mutual Insurance Company says the amount insurance companies have paid out on fidelity losses has increased 130 per cent in the last ten years, while the cost of living was going up only 62 per cent.

Additional support for the contention that dishonesty is on the increase comes from Norman Jaspan, president of Norman Jaspan Associates, Inc., a management consulting concern, and of its subsidiary, Investigations, Inc. Jaspan formed the investigative branch of his business when he discovered that the affairs of a great many companies which called him in as a consultant were strongly tinged with fraud and defalcation and that the companies lacked adequate internal controls. His first step now in studying a client company's problems is to look for the kind of management laxness that encourages individual peculations.

Jaspan says projections of his own experience indicate the insurance company's billion-dollar estimate is the probable tab for management trustfulness or carelessness and employee deceit in the year just past. He says he has noted a particularly strong upswing in dishonesty of various kinds since the onset of the recent recession—just at a time when it became urgent for management to stop up any leakages contributing to the cost-price profit squeeze.

Bollard of Liberty Mutual, on the other hand, reports that although insurance company fidelity losses are still increasing annually, the rate of increase was greater from 1947–52 than from 1952–57.



The nature of some companies' products tends to discourage pilferage.

But whatever the extent of the losses, cost-conscious employers are agreed that they can no longer afford the luxury of laxness in this area. However, instituting the necessary controls also can be costly.

As the vice president of a carpet manufacturing company says in replying to a new DR&MI survey on employee dishonesty: "We believe that there is a great deal of employee dishonesty which is undetected and unreported. Management must decide whether controls should be 100 per cent effective. It becomes more and more costly to increase controls as they near 100 per cent efficiency. At some point it is more economic to suffer the loss than to bear the expense of an organization geared to prevent all loss."

Most of the large companies (employing an average of 6,000 employees) in the DR&MI survey could not give any concrete figures on their total losses through dishonesty, although a fifth of them say they have

Surprise inventory checks may surprise you as much as the inventory clerks.

suffered an increase. On the average, these companies uncover annually about eight instances of dishonesty involving approximately twice that number of employees.

Some thefts are discovered accidentally, as was the case recently when a company manufacturing cosmetics offered its women employees lipsticks at 20 per cent off and was surprised to find that there were no takers. It was surprised all over again when investigation showed the employees were already getting their lipsticks at 100 per cent discount by on-the-job pilferage. Here was a "fringe benefit" that had been costing the company plenty—although it wasn't listed in the employee benefit plan.

In enumerating the kinds of dishonesty which are most costly to his

Purposeful "accidents" offer many an employee a chance to buy at discount.

company, one respondent, the treasurer of a big cigar manufacturing company, puts at the top of his list, "The kind we never discover." The accounting manager of an electrical products manufacturer bears him out by reporting his own suspicion that "there is a possibility that some employees may pad production count to increase incentive bonus."

Many companies are calling in outside help when they suspect wrongdoing but cannot find supporting evidence. The William J. Burns International Detective Agency, for instance, reports a growing demand not only for plant guards but for undercover operatives to check on the activities of office and plant employees alike. The DR&MI survey shows one in ten companies regularly uses undercover surveillance and about three out of five resort to it only on occasions when definite suspicion has been aroused.

No pattern to theft

The type of dishonesty seems to vary from company to company. For example, the treasurer of a company which manufactures cast iron pipe and large steel fittings says, "The nature of our product makes it difficult to remove from the plant. Our main problems are loss of small tools and high-priced additives such as aluminum."

What can a company do to protect itself from these known or suspected losses? Better management and better controls are the remedies suggested by both the consultants and the company executives surveyed.

From the treasurer of a company manufacturing chemical specialties comes this comment: "It is my private opinion that employee dishonesty results more from poor management than from character weakness of employees. A well-run business will have a good system of internal control—if size permits, of course."

Top-level responsibility

Jaspan says that 30 years of dealing with such matters has convinced him that "dishonesty, in most cases, is a by-product of mismanagement."

"One should not ignore," he says, "the influence of management pressures. When we impose upon people impossible tasks, unrealistic quotas or budgets, something usually snaps. People begin to cheat a little here and there and then to manipulate on a larger scale. Before you are aware of it, you have a supervisor, purchasing agent, or other employee who has learned how to steal.

"Essentially there are two opposite kinds of pressure applied to executive and supervisory personnel—the pressure on sales-minded executives and production supervisors to beat last year's figures, to increase volume at whatever cost, and, on the opposite side, the pressure on operating and control personnel to offset the narrowing margin of profit which is facing business today. Because you have these pressures, records are manipulated."

And, he goes on, it is only a short

Is there a ghost on your payroll? Good controls will avert payroll padding.

step from manipulating records to avert the pressure on oneself to manipulating them for personal profit. As in the case of an employee who commits a genuine error, finds that nobody has noticed it, and then begins repeating the "error" for gain,

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MINIATURE MANUFACTURING *is difficult to mechanize because of the size of parts. Much painstaking work is required, as in the assembly of this tiny ball bearing at Miniature Precision Bearings, Inc.*

MINIATURIZATION:

Bigger Profits from Smaller Products

MELVIN MANDELL, *Industrial Editor*

Tried and proved in the electronics field, miniaturization today is creating a new high-volume, high-profit market for small-scale consumer and industrial products.

A FEW years ago a fifteen-year-old hearing aid manufacturing concern was taken over by new interests and moved from Illinois to Ossining, N.Y. Not long after, the company, Otarion, Inc., marketed a new hearing aid built of tiny parts assembled in hollow eyeglass frames (see photo opposite). In the five years since the new "miniaturized" product was introduced, sales have shot up 1,200 per cent—and every important competitor has copied the idea.

Another manufacturer of lilliputian products—mechanical equipment in this case—states that a "miniature" product justifies up to a 10 per cent advance in price over the standard-size version, that a "subminiature" version (the next step down in this new art of shrinking) calls for a 25–50 per cent increase, and that the "microminiature" model (you handle it with tweezers) sells for as much as 100 per cent more than the standard.

Right now the greatest quality markets are in the aircraft and missile industries, with substantial sales volume in the computer, automation, and instrumentation fields, medicine, and the telephone companies. But the real high-volume, higher-profit market is based on the growing public demand for tiny gadgets or portable products that require miniature parts. For example:

- Small transistor radios are the radio manufacturers' sales leader.
- The not-so-portable "portable" TV set, which owes its lighter weight and much of its compactness to miniature parts, has given needed support to sales in the TV receiver industry.

A boon to manufacturing

Although it has been practiced most widely and spectacularly in the electronics industry, miniaturization of mechanical as well as electrical parts is getting a foothold in almost every segment of manufacturing. For instance, the Clippard Instrument Laboratory, Inc., Cincinnati, has recently introduced a line of miniature air cylinders, valves, manifolds, and associated accessories that help keep the size of automation equipment in bounds.

There's nothing exactly revolutionary about the idea of miniaturization —for generations, to take one obvious example, watchmakers have been assembling mechanisms nearly microscopic in scale. But today, for the first time, a great variety of tiny interchangeable industrial building blocks are being mass-produced. And the accuracies achieved in even the most inexpensive miniature parts are usually far higher than those in the most expensive timepieces.

Unfortunately, there is no universal definition of miniaturization or its descendants: subminiaturization, microminiaturization, and ultraminiaturization (see box on page 45). The meaning of these terms varies from company to company within an industry.

A Bell Telephone Laboratories researcher, David A. McLean, believes that a miniature product, to deserve the name, should represent at least 50 per cent (and preferably 75 per cent) reduction in size or weight under its standard progenitor. Within the miniature ball bearing industry, any product less than ⅜-inch in outer diameter is classified as miniature. The military has set up some definitions of "miniature," but these are mostly limited to electronics. It would seem the art of miniaturization is still too young for standardization.

Miniaturization in its more advanced phases came into being to counter ruinously expensive and cumbersome complexity. (See box on page 68 for some other reasons.) For the military, this is an absolute consideration. Airplanes, satellites, and missiles just wouldn't get off the ground if their complex control and aiming systems were not miniaturized. It costs up to ten pounds in structure and power plant to add one pound of equipment to manned aircraft, but the ratio increases to a staggering 100 to 1 in missiles and satellite vehicles.

Saves space and money

For industry, miniaturization as a means of reducing complexity in the product is usually not an absolute necessity, but in many cases it has a tremendous bearing on the profit and loss statement. Take the electronic computer, already familiar in offices and research centers. Without miniaturization, these giant "brains" would spill over tremendous areas of costly floor space and require towering air conditioning plants. Through miniaturization, they may some day occupy the space of a desk and be cooled by a fan.

Although the word "miniaturization" was not invented until 1946, the technique is essentially an advanced, accelerated phase of the historical industrial trend toward getting more horsepower out of a pound of equipment—and, conversely, getting the same performance out of a smaller piece of gear.

Miniaturization, however, represents a break in the steady and often unimaginative evolution of equipment.

How Small Is Small?

There is no standard definition of "miniature," or of its more advanced categories, ultraminiature, microminiature, and subminiature. However, this table comparing the average size and weight of three classes of relays gives some idea of the quantitative relationship between categories.

	VOLUME (*cubic inches*)	WEIGHT (*ounces*)
Miniature	4.40	5.25
Subminiature	0.50	1.25
Microminiature	0.25	0.50

It means a radical, inventive, and sometimes elegant approach to product design. For example:

- All materials are pushed to the limits of their capacity. Safety factors are slashed.
- Unusual and exotic materials are utilized to the fullest, and such small amounts are needed that material costs are not significant.
- If the miniature device requires a vacuum or a special operating atmosphere, hermetic sealing of unusual tightness is now available at reasonable cost.
- Miniature products are often enclosed in new, unusual shapes in order to achieve size reduction.

The invention of the transistor in 1948 was a real milestone in the miniaturization drive. The tiny size of the transistor (much smaller than an ordinary vacuum tube) challenged the makers of the other electronic components to shrink their products. In addition, the transistor operates on much lower voltages and smaller and fewer currents than the tube. By demanding less, it therefore provided the operating conditions for designing smaller mating components.

Some fortunate accidents have also favored the development of miniaturization. For instance, the makers of miniature ball bearings couldn't find dependable, volume sources of tiny steel balls until the ball point pen came along to create an enormous demand. But military needs will continue to be the greatest stimulus to further miniaturization.

Profitable "piecework"

For its full benefits to be realized, the miniaturization concept must be applied across the board. There's no point in building a miniature motor, for instance, if its reducing gears are standard size. This situation offers a golden opportunity for the manufacturer who wants to get into the miniaturization business. All he has to do is find some part—resistor, gear, linkage, valve—that is not shrinking as fast as its related parts, and make it in an economic miniature version. This approach is a lot easier than trying to produce a complete miniaturized piece of equipment. Selling to a small number of original equipment manufacturers should be simpler than attempting to open up a new final consumer market.

To get an idea of what it takes to mass-produce miniature parts, look at one of the many plants in this business which were inspected by DR&MI editors, Miniature Precision Bearings, Inc., Keene, N.H.

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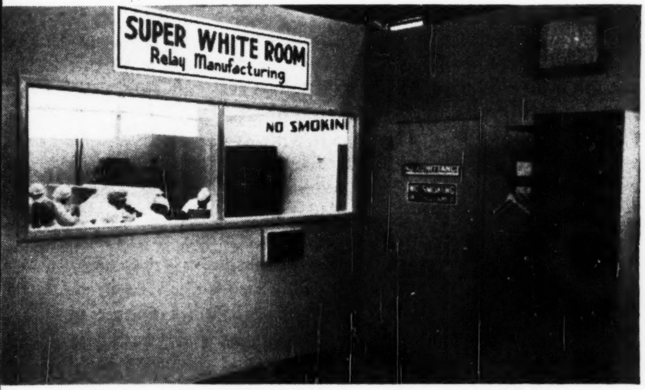
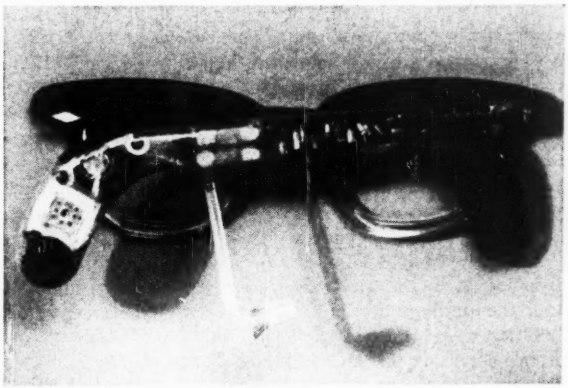
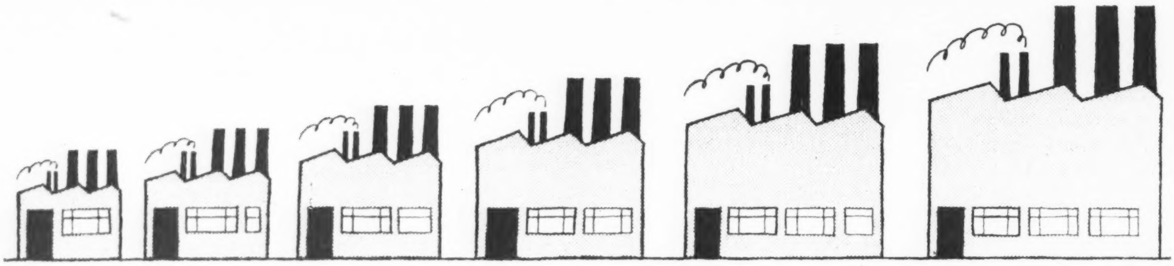


SPECIAL PRECAUTIONS: *Assembling miniature parts and products usually calls for special segregated areas in which air, humidity, temperature, and dust are carefully controlled, even though the entire plant is air conditioned. This is the miniature relay assembly room at General Electric, Waynesboro, Va.*



SALES-STIMULATING REDESIGN *of familiar products is possible by using miniature parts. The outstanding example is the Otarion "Listener" hearing aid, ingeniously packaged in hollow eyeglass frames. The working parts are shown here in a transparent "temple" to illustrate the density of construction.*

What Makes a Business Builder?



J. ELLIOTT JANNEY

A prominent management psychologist draws a fascinating portrait of some successful entrepreneurs—men who have built outstanding business successes on verve, daring, and imagination.

THE COLORFUL, old-school entrepreneur may be outnumbered in the modern, automated business world, but reports of his death are greatly exaggerated.

An intensive psychological study of 40 business builders—men who have started new businesses or revived old, failing ones—has led me to conclude that the free-wheeling, highly individualistic executive is still very much in evidence.

The intent of the survey was to isolate the special qualities, if any, that mark the man who successfully builds an enterprise and beats the five-to-one odds by keeping a business going and growing for ten years or more.

There are, of course, many kinds of people who are able to make their mark in business. And the more conservative man who normally sticks to the principles of good management and good business would be inviting disaster if he tried to emulate the maverick entrepreneur.

Still, the "boy wonders" of the business world make fascinating case histories. Since the survey was a small one, the findings are not conclusive. But they may indicate at least some of the qualities the successful entrepreneur is likely to possess.

These 40 business builders differ greatly from one another in temperament, education, and background. One, a lumberman, traces his ancestors to the first families of Virginia. Another, an instrument builder, was an Italian immigrant. One has gone no further in school than the eighth grade, and another has a Phi Beta Kappa key from a fashionable Eastern university. They are Catholics, Protestants, Jews, and free-thinkers. Most of them are devoted family men; a few are libertines bent on shortening their lives with dissipation.

Wide-ranging interests

The matters to which they have turned their keen minds and boundless energies range literally from the quality control of horse manure in the mushroom industry to industrial applications of nuclear energy. Sales volume of the businesses they have built range from $780,000 (small-town Ohio variety store) to $800 million (an Eastern general machinery and electronics manufacturing company). Most of them head Midwestern manufacturing concerns grossing under $50 million in annual sales.

Despite great personality differences, these men share several personal traits and attitudes. The way in which they view themselves and the world in which they live also sets them apart from other men.

They all have an unusual sensitivity to what is new in the market. They ignore the historic trends and seem to sense when the trends are changing before the change shows up in the statistics. Like the newspaperman with a nose for news, they possess a nose for business—an ability to see opportunity where others can see only facts.

Business is a way of life

Families of these men complain that they can never "get away from business," even on vacations. Opportunity doesn't knock for them—it seems to open the door and shake their hand. More accurately, they reach out and grasp it.

"Getting away from business" is the last thing these men want to do, regardless of what they say. Business is their element—they thrive on its stimulation.

Time is their most precious possession. They may be the most generous of men in other ways, but they part with time grudgingly.

Combined with this near-reverence they hold for time, these business builders possess almost boundless energy and drive. They drive themselves past the point of fatigue. They will awaken in the middle of the night with an idea that sends them back to work. They will call subordinates at any hour of the night to expound on a new plan.

They think mostly by over-all patterning, rather than bit-by-bit analysis. Like the artist who sees shadow, color, and line as a part of a finished

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Donald MacGregor, Vice President — Production, Zenith Radio Corporation

"Moore forms help us keep inventories at healthy levels"

CONTROL REGULATES ZENITH'S PRODUCTION OF TV SETS TO THE MARKET DEMAND

A new system keeps Zenith Radio Corporation from 'running in the dark' when scheduling production. A daily report gives management complete production information at the opening of business each day. This allows faster changes in scheduling, purchasing, and production. Deliveries go out on time. Capital isn't frozen in large inventories.

Zenith's new Production Record makes this possible. It lets all levels of management compare actual performance with scheduled production. Operating departments down the line can adjust their day's work accordingly. An electric accounting machine prepares and prints the Production Record, a specially designed Moore form. This is Zenith's control in print.

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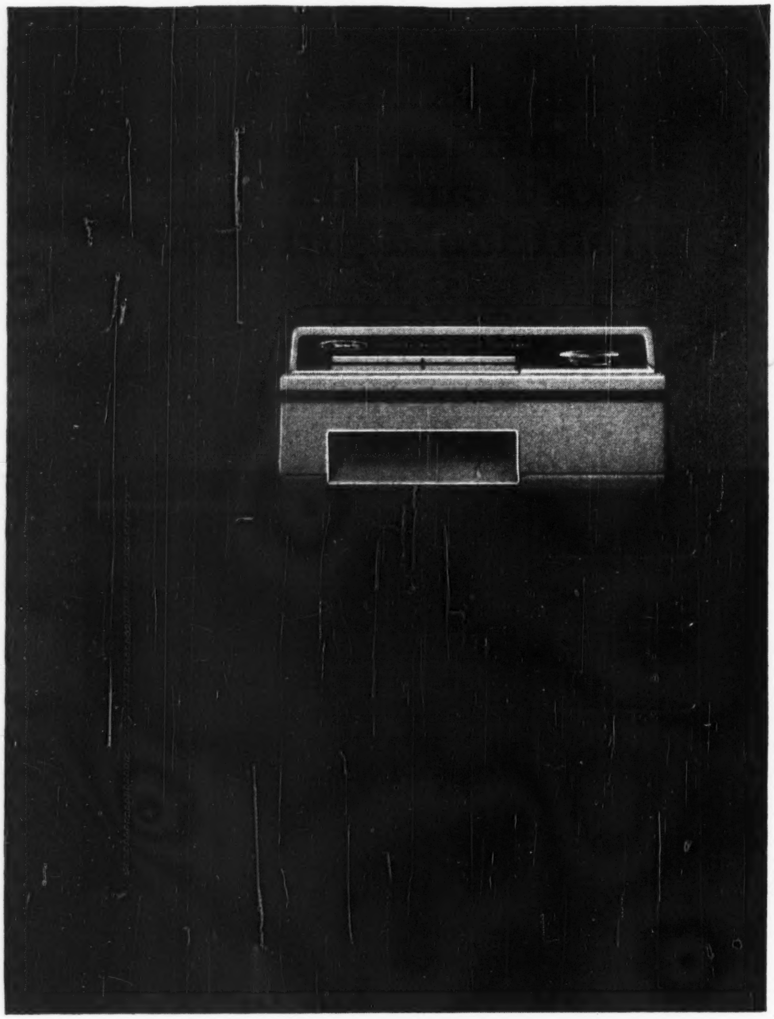

BUSINESS BUILDERS

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picture, they see an end-result where others see only a welter of details.

One of the 40 men studied was a Pennsylvania plastics manufacturer. He once got the jump on his competitors by building a multi-storied plant when they were all building single-story type operations. He had recognized the similarity between his business and the flour and feed business. He utilized gravity flow of materials to cut costs and give himself a competitive edge.

Because of this ability to winnow pertinent factors from a mass of detail, many of the group could be regarded as intuitive, rather than analytical, but this is speculation only. It may only be that they think faster than others. Subordinates of such men complain, "The old man is nearly always right—for all the wrong reasons." The man himself says: "It's only a matter of common sense. Why can't they see it?" Quite a number of them can't, or won't, give a step-by-step account of why and how they arrive at their judgments.

Rugged individualists

Whether or not the same thing is true of all business builders—and many management authorities would contend that it isn't—the 40 men studied are nonconformist in their outlook. They refuse to follow the herd, and are unimpressed by so-called authorities.

Twenty-seven of the 40 began their careers as employees of corporations. Almost without exception they were disciplinary problems. They resented having to slow down their pace by "going through channels" and lacked the tact to conceal their resentment.

This refusal to conform can at times pay big dividends. One Illinois business builder observed that manufacturers of horse-drawn farm equipment were withdrawing from that market at a faster rate than farmers were converting to powered implements. For a time he prospered by making horse-drawn tools. Then he adapted his line so that his tools could be pulled by water-buffalo in the Far East. Today he makes a line of do-it-yourself garden tools.

All-pervading, almost naive faith in their own destinies underlies all the actions of these men. Up or down, scraping to stay afloat or enjoying lush profits, they never tolerate self-doubt.

These men are so self-confident, in fact, that they almost seem to believe they are immortal. They are reluctant to train successors—death is reserved for others, not for them.

They also seem impatient with modern business administration. They are concerned with the "real business." Details annoy them. "Let's get those dump trucks shipped and we'll worry about

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Let us give you the facts on the sources of abundant soft, cold and hot water readily on tap in the available sites served by our railroad. Let us show you, too, how, through our systematic investigation procedure, we can anticipate your queries on . . . .

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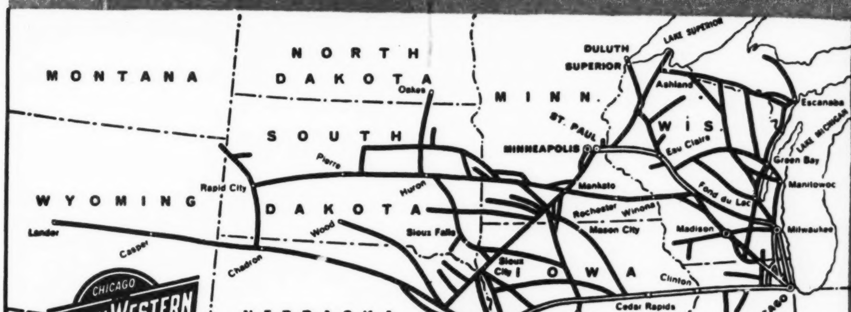

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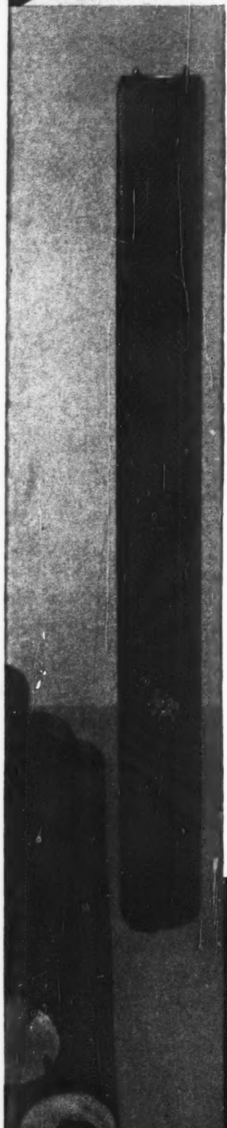

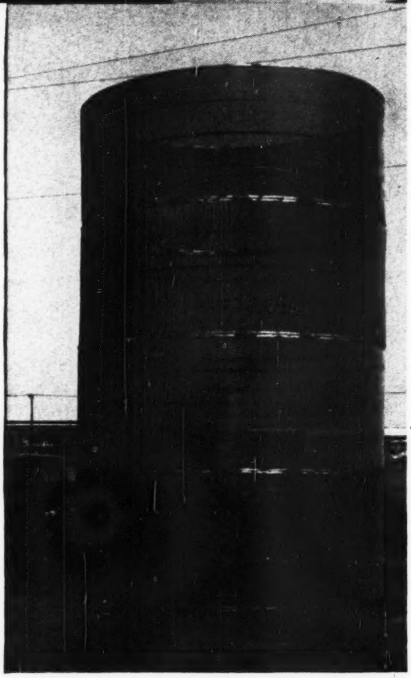

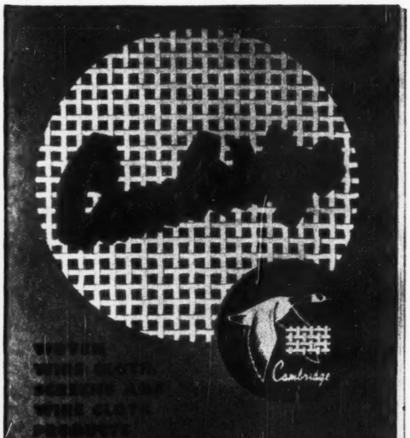

the paperwork on Saturday afternoon—if there's time." Getting things done is important and fun to them.

To some extent, they have a keen insight into people's motives and character. They know what people will buy, when they will buy it, and what they will pay.

Yet in other areas of their living they seem unable to exercise this insight with the same success. Despite the charm they can exhibit at times, they are capable of quick rages and of quarrels with subordinates. Yet they command intense loyalties from some employees—usually from the kind of men who respect ability and are willing to make sacrifices to be part of a winning team.

They gamble and they improvise. It is hard to predict what they will do.

THE AUTHOR • Dr. J. Elliott Janney is one of the founding partners of Rohrer, Hibler & Replogle, a nationwide firm of psychologists to management. For the past fifteen years, he has been consulting with top management in a cross-section of industry on the selection and development of managers. He holds a Ph.D. degree in psychology from Ohio State University and is a diplomate of the American Board of Examiners in Professional Psychology.

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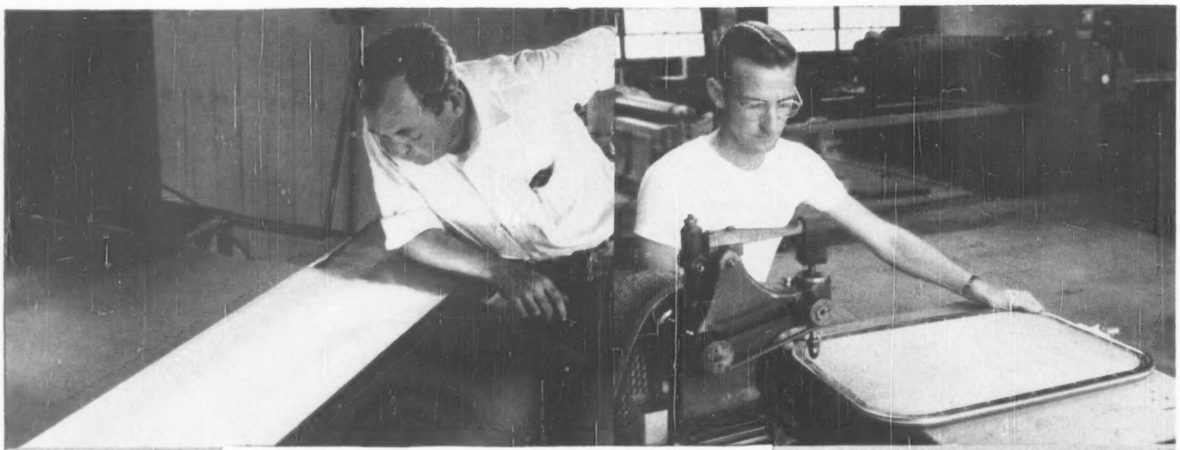
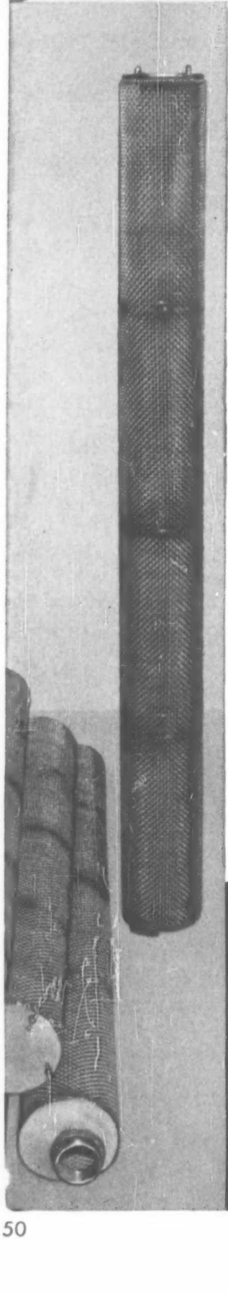
They enjoy their own unpredictability. In fact, they seem to have a streak of the practical joker in them in the way in which they enjoy upsetting their competitors' applecarts.

If these men are typical, the business builder is a different sort of man than most. He is more committed to his sense of values, more dedicated to his work, more convinced of his own competence.

If he sometimes seems stubborn and cocky, we must remember that the prophet and the pioneer are never very easy to live with. They disturb the comfortable, prod the unwilling, lead and drive the hesitant. They resemble the men who made this a great country, the wilful rebels who saw cities where others saw forests, who dreamed big dreams and refused to believe that there was a chance that the dreams would not become reality.

Above all, they know that only change is permanent, and they have sensitized themselves to which changes are likely to be profitable. END





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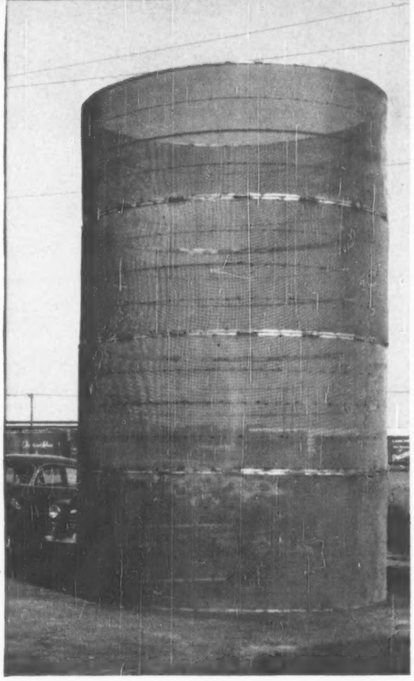

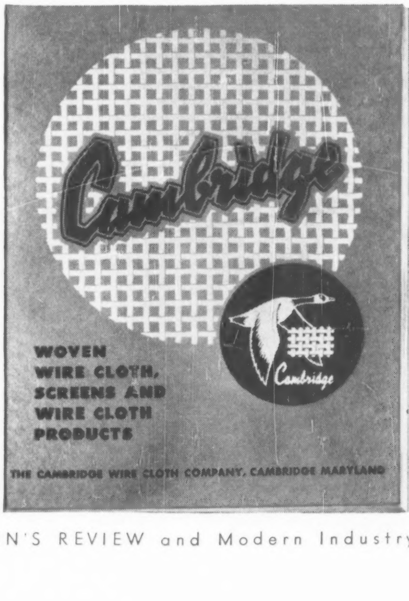

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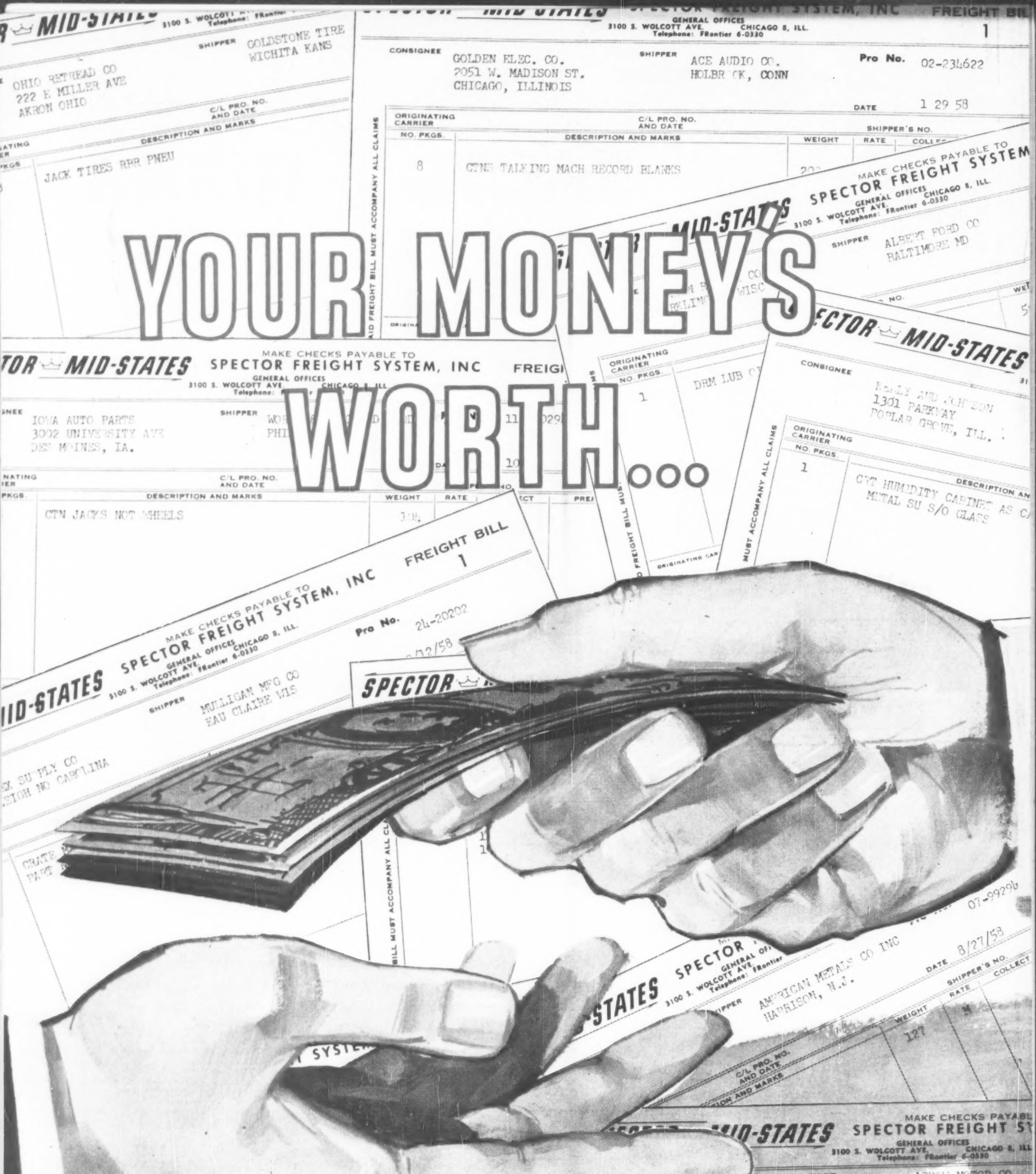
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Faster Fastening Cuts Production Costs

RISING production costs and recent advances in forming parts have made necessary the complementary development of new powered machines for faster application of familiar fasteners and the invention of entirely new fastening techniques for use in manufacturing.

Investment casting, core forging, chemical milling, flow-spinning, progressive die stamping, and explosive forming are among the new fabricating techniques now widely applied in American factories to cut part costs or to achieve designs impossible or impractical with familiar machines.

But in mass production the cost of assembly is usually a major, if not the greatest, cost element. Therefore, introduction of a better or faster fastening method can reap greater savings than faster part fabrication.

Adhesive fastening has progressed more rapidly in the postwar era than any other fastening technique (see DR&MI, March 1958, page 47).

Other fastening methods

In addition to adhesives and the fastening methods illustrated, there are a number of other new fastening methods worth evaluating. They include:

- Aluminum dip brazing
- Inert-gas welding
- Ultrasonic welding, soldering, and brazing (see DR&MI, June 1958, page 40)
- Air-powered nail drivers (see DR& MI, January 1958, page 44)

Metal stitching (see photos) resembles stapling, except that the fasteners can go through sheet metal, even full-hard stainless. It can also be used to attach plywood, rubber, fabrics, and plastics to metal as much as ⅛-inch thick. As with stapling, no holes need be drilled first. Cost is very low—20 cents per 1,000 stitches.

When a machinist has to attach a bolt to a surface, and he can't work from the other side, the usual procedure is to drill a hole, tap it, then thread in a stud. Stud welding (see photo) enormously speeds up the job by attaching the stud directly to the surface by fusion. A good operator can load the $500 welding gun and weld the stud in about ten seconds. First developed in 1939 for the shipbuilding industry, stud welding now does many heavy metal-working jobs, especially in construction.

No more sore thumbs

Even the lowly nail is being upgraded. A new "Hi-Load" nail has been developed to replace the long-wire nail commonly used to attach plywood sheathing to walls, floors, and ceilings. Short, thick, and threaded, the new nails won't pop, can be handled more easily, and —from the production angle—can be driven faster. In addition, they bend less often when hammered, thus reducing waste.

Most of the fasteners or fastening methods shown here are permanent. They can't be unfastened easily or without destroying the product. But where field disassembly is necessary to make repairs or for regular maintenance, a number of unusual, quick-opening fasteners can be used. The "Air-loc," "Cam-loc," and "Dzus" fasteners are good examples.

Growing standardization among suppliers of specific fasteners should insure greater uniformity of fastening in the end-product in which they are used. For instance, all the manufacturers of Phillips recessed-head screws recently agreed on a smaller number of standard driving tools. The design of the recess has also been made uniform so that the same torque will drive the same size screw no matter who makes it.

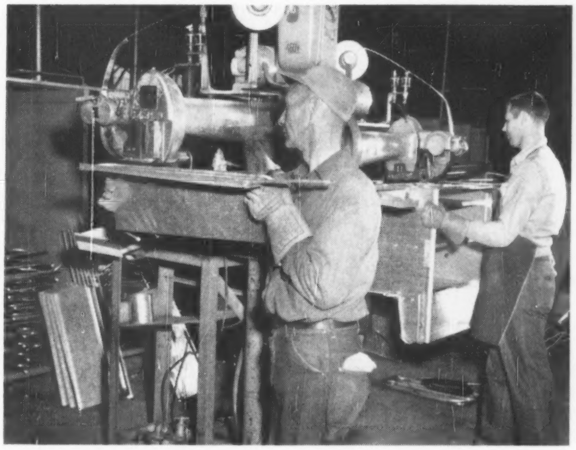
Plastics in fasteners

The latest materials also are going into — and around — fasteners, so that they can perform in difficult, corrosive, or high-temperature environments. By enclosing the heads of some fasteners in plastics, electrical insulating functions can be gained. Some of the new "blind" rivets depend on the properties of plastics for their action. Although plastic fasteners are not so strong as metal ones, they frequently can be put in place much faster.

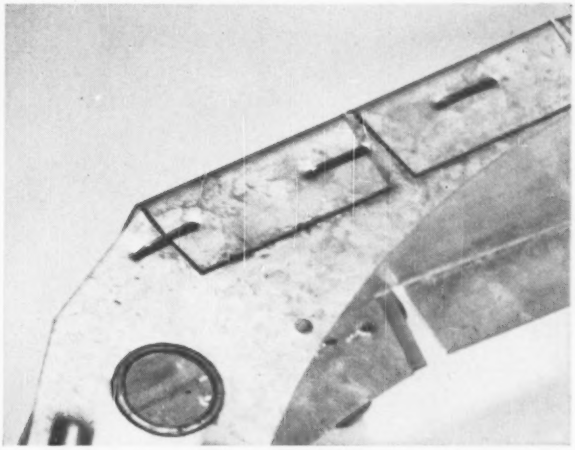
Better fastening has particular importance in the United States because of our much higher labor rates. Since practically all fastening machines or tools are individually operated or controlled, improving their speed and efficiency helps in offsetting cheap labor rates overseas. —M.M.

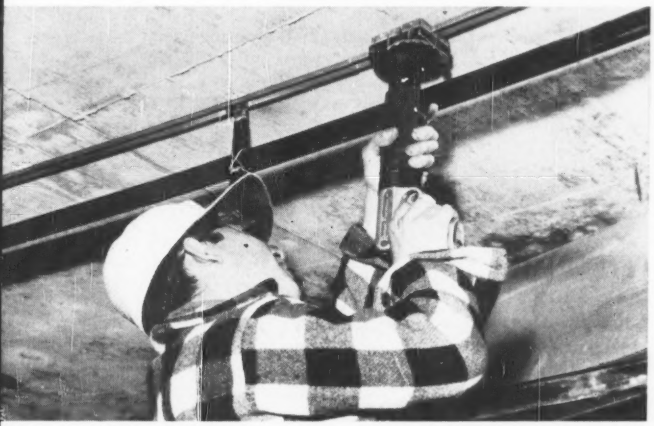
TAPE-CONTROLLED RIVETING: *This is one of four $300,000 machines riveting 75- by 4-foot B-52G wing panels at Boeing's Wichita Division. Made by General Drivmatic Company, Buffalo, the 13-ton riveter automatically drills and countersinks the hole, inserts the slug, rams, then shaves off the outer head—before moving to the next electronically-located spot. The largest slug sizes are stored at —10° F and driven very cold.*

PACKAGING: *Up to 1,000 of these corrugated cartons can be turned out in one shift on this motorized Bostitch stapler. Previously tape was the fastening agent at General Industries' plant in Elyria, Ohio.*

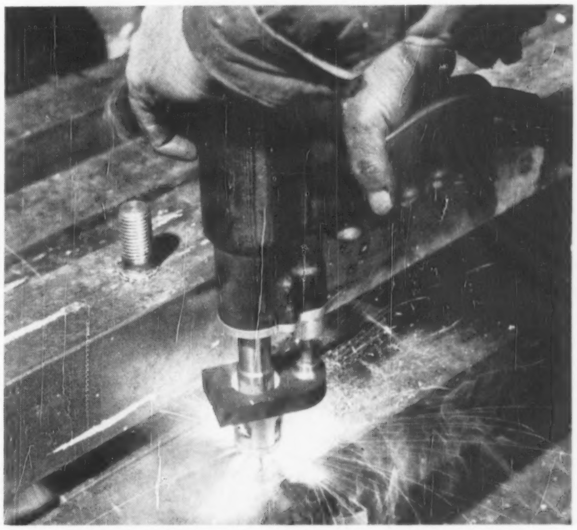


A STITCH IN TIME: *Assembling aluminum sections of freezer liners at Amana (Iowa) Refrigeration, Inc., with an Acme-Morrison Metal Stitcher. By changing over from metal screws, assembly rates increased twelve times at one-third the cost in fastening materials. A close-up of metal stitching is shown at the top right.*

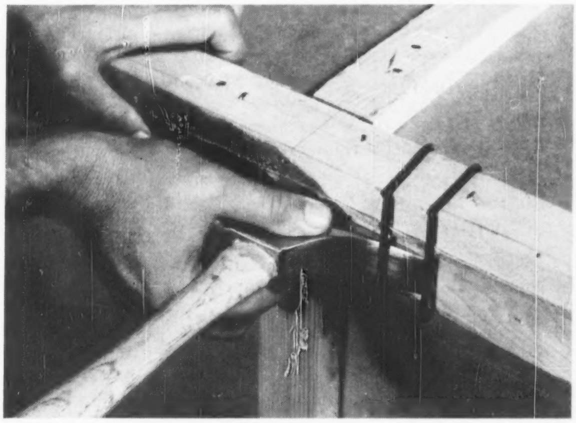




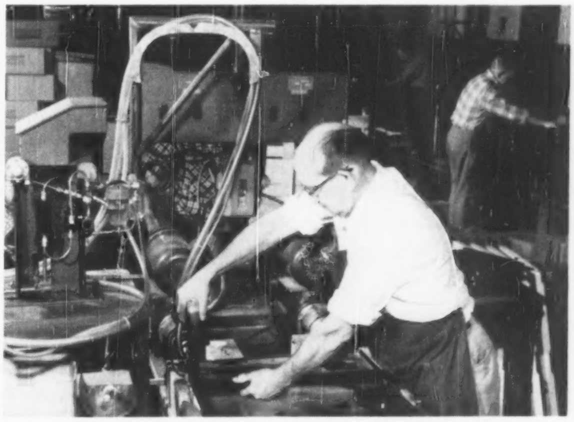
MAINTENANCE: *Explosive-actuated tools, mainly used in the construction industry, are fast becoming one of the major weapons of the maintenance man. Fasteners can be rapidly driven into place even in awkward positions such as overhead. Here, a Ramset tool attaches lathing channels to a concrete ceiling.*



STUD WELDERS: *Mainly used in heavy industry, stud welders can attach threaded studs or eye bolts to metal surfaces in fractions of a second. The welding gun is made by KSM Products, Inc., Merchantville, N.J. Stud welding is particularly valuable where the worker can't work from both sides.*



REUSEABLE FASTENERS: *These "Klimp" fasteners can be quickly attached or removed from special cleated-panel shipping containers. Available from Navan Products, Inc., Los Angeles, the modular packaging system can cut container costs by 50 per cent. The technique was developed by North American Aviation.*



AUTOMATIC FEEDING: *All the operator has to do is hold the air-powered tool over the hole in these Sears-Kenmore ranges, and a screw with preassembled washer pops into place. These Parker-Kalon screws are fed through a transparent plastic cable from a big storage bin. The tools are set not to overdrive.*

INTEGRATED MARKETING

continued from page 41

102 per cent, the other by 32 per cent. The cost in the first case was a comparatively moderate 25 per cent increase in dollar investment; in the other, 46 per cent. This disparity obviously called for action. To make volume profitable, Ditto set up each branch sales head as the manager of his own business. He was sold his goods at a transfer price and made accountable for his own profit and loss. Improvement was immediate and lasting.

Profitable sales coverage

Assignment of salesmen to territorial coverage is another illustration of the managed approach to selling. Sylvania Electric Products faced the problem of providing field sales coverage for a mass-produced lighting product throughout the United States. Instead of simply spotting its men on the basis of hunch, or permitting coverage to develop haphazardly, Sylvania identified its market areas, determined what the most profitable coverage *should* cost, and assigned men only as potential payoff indicated. The net result was a 28 per cent increase in sales of this product over a five-year period.

Give 'em better service

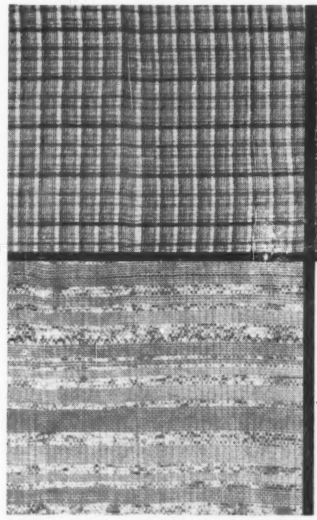
The third major purpose of marketing is to provide service so that the customer is satisfied with the product he buys and will either repeat his purchase or recommend the product to others. Many companies have found that service is the critical point on which repeat business depends. Appliance, television, and automobile buyers, for example, are swayed as much by the service reputation of the manufacturer as by the qualities of the product itself.

General Electric is an excellent example. Several years ago it established formal marketing organizations and instructed them to meet this initial fivefold goal:

- Find out what and where the markets are.
- See that General Electric has the right product, at the right place, at the right time, at the right price.
- Support G-E products adequately with advertising and sales promotion.
- Sell to the greatest possible number of customers, through the most efficient and economical sales and distribution channels.
- Provide effective customer and product service.

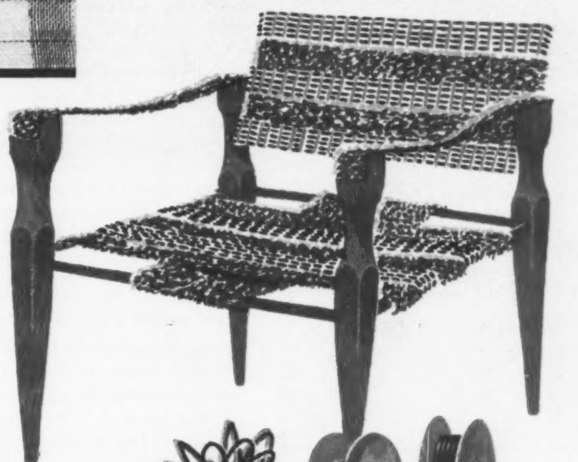
Fine-sounding words? Yes, but they also triggered telling action throughout General Electric's many decentralized and diversified operations. Take vacuum cleaners. General Electric had an undistinguished product and only a small share of the market. Its prices were

A NEW WAY TO UPGRADE YOUR PRODUCTS: VINYL COATINGS

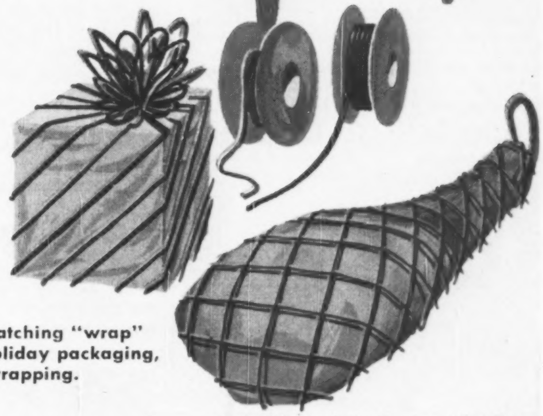


These weave patterns are made with 5 colors of vinyl-coated fibrous glass.

This "deck chair"* is covered with vinyl-coated string, woven to a high-style "net" that is tough, colorful, weather-proof.



Highly decorative vinyl-coated string can make multicolor net bags and carry-alls.



Eye-catching "wrap" for holiday packaging, gift wrapping.

*Designed by British Chair Company, Miami, Fla.

Colorful, "leather-y" coatings for STRING, ROPE or FIBROUS GLASS

You can put a smooth, tough coating of vinyl on rope, string, thread, or filaments of fibrous glass with a continuous dip and cure process using a vinyl dispersion. The coatings transform these basic materials into something new, different, colorful with wider marketing potential.

Tough vinyl "skin" up to 1/16" (60 mils) thick can be applied by a single dipping. Color range is unlimited, and the toughness and flexibility can be controlled by the formulation of the dispersion. For sources of vinyl-coated string, rope or glass filaments—or for sources of ready-to-use dispersions for coating sheet metal, wire, expanded steel, or glass, write Monsanto.

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high. The design had been determined by engineering people who modified it only to fit manufacturing requirements. If features of the cleaner happened to fit the housewife's requirements for cleaning floors, this was largely by coincidence.

How to put the emphasis where it belonged? General Electric first put its market researchers to work finding out who the vacuum cleaner customers were, where they lived, and what kind of cleaners they needed, wanted, and would buy. This information was fed to another new marketing division—product planning—and, as a result, the many different models engineered to offer a host of design features were combined in one multi-service type. Instead of serving primarily as a rug cleaner, the vacuum was made an efficient tool for cleaning furniture, draperies, and woodwork, as well as carpets.

Focal point: the customer

Where were these customers, and how did they prefer to buy? The answer to that question placed G-E vacuum cleaners in a large number of appliance outlets where the housewife said she'd prefer to shop.

How much did the customer want to pay? GE found that vacuum cleaners increased in popularity as the price moved under the then current bedrock low of $100. And as the price tag got as small as $50, demand zoomed again. General Electric lowered its prices accordingly and cut costs proportionately by concentrating on the production of a single model.

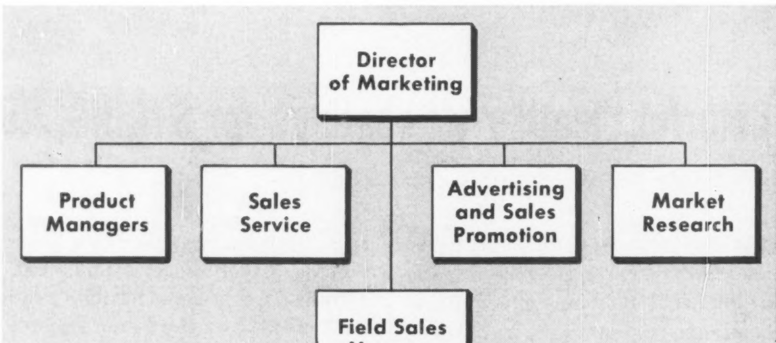
The consolidation and refocusing of staff effort is important in the new marketing concept, though it is often overlooked by companies which do not see the basic pattern. All staff groups necessary to accomplish the basic purposes of company marketing must be integrated under one marketing executive. A logically grouped, tightly-knit organizational entity must be developed to reach these new goals. For most companies, this means expanding marketing to include advertising, sales promotion, market research, and sales training.

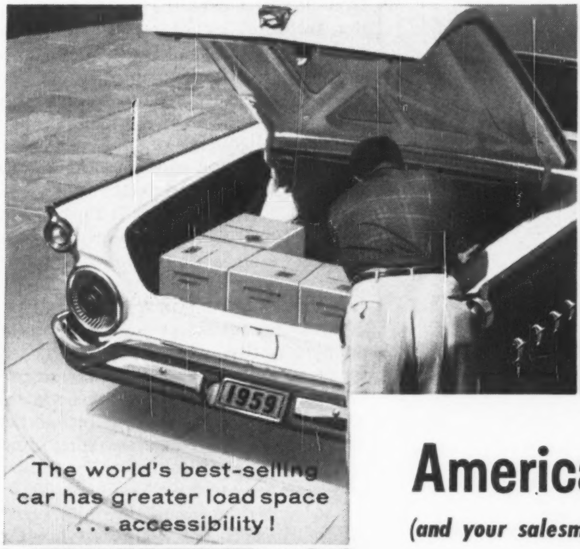
A team of experts

Realigning staff in this way has several important advantages. For one, it brings together a team with varied skills immediately concerned with the same objective: finding, selling, and satisfying customers. Because these staff specialists report to a top marketing executive, technical problems in advertising, sales promotion, and market research need never reach the president, but can be effectively integrated and coordinated one full level below the top. This has two advantages. It removes

The New Marketing Organization

While no one organization pattern will fit the requirements of every company, here is a representative set-up incorporating the principles of integrated marketing and designed for a functionally organized, multi-product company with national distribution.





The world's best-selling car has greater load space . . . accessibility!

The car hottest in demand is easier to enter . . . more comfortable to sit in!

America's sold

(and your salesmen will be, too!)

The best seller is the 59 Ford and the big reason for Ford's success is that it makes wonderful sense.

Fords are built for people. And this makes your *salesmen* happy. Doorways are wider—easier to get in and out of. Trunks are easier to load. In fact, Ford's trunk opening is almost a foot *lower* than Ford's nearest competitor. Seats are *fully* cushioned.

Fords are built for savings. And this makes *everybody* happy! Standard Ford engines thrive on regular gas (at regular prices). Full-Flow Oil Filter means oil changes only every 4000 miles. *Aluminized* mufflers last *twice* as long as ordinary types. And the world's most beautifully proportioned cars have the world's finest finish. It needs no waxing—*ever!*

No wonder fleet buyers are sold. It's just good sense to do business with

...59 FORD FLEETS

The car with the biggest following is the car with Thunderbird elegance!

The No. 1 car in sales saves money on gas, on oil, on maintenance bills!

The most popular car is the lowest priced of the best-selling three!

from the president the burden of making technical decisions in marketing, and it gives the marketing head an opportunity to make balanced judgments involving all aspects of marketing problems.

This realignment of staff also gives the top marketing executive the administrative tools he needs to accept and exercise wider authority. It thus creates a basis for truly decentralized marketing.

Pre-selling the customer

Another advantage of unified staff support is that now the company can bring all its heavy guns to bear on preselling through carefully-focused programs of market research, promotion, and advertising. It is becoming more and more obvious that customers can be sold on brand superiority before they reach the dealer or store, and that, once established, this brand preference can be maintained with support from the retailer. This is where effective staff can provide payoff backing for the field sales force.

THE AUTHOR • Louis A. Allen, who has had extensive experience in advising companies on management and organizational problems, now heads his own management consultant firm—Louis A. Allen Associates, of Palo Alto, Calif. He is the author of *Management and Organization,* published by the McGraw-Hill Book Company, and has lectured at New York University and the University of Chicago. He has held managerial positions with the Aluminum Company of America and Koppers Company, Inc.

A significant development in marketing staff is the increasing importance of the product manager. Although frequently misused as a product field sales supervisor, the product manager has become an important staff adjunct to the integrated marketing team.

The product manager can help solve the problem of selling multiple and diversified product lines through a single sales force. It is a marketing axiom that, when a salesman carries two or more lines, he will inevitably favor one or a few over the others because of greater familiarity, easier selling, better commissions, and related reasons. As a result, excellent long-term prospects for these neglected products often dry up before they can be developed.

Some are favored

To a somewhat more limited extent,

the same thing happens at the staff level. Preferences creep into functional decisions all the way from the use of television spots to allocation of the package design budget. Sooner or later, part of the line is badly handicapped in its battle with outside competition.

The conventional solution has been the use of sales specialists or separate sales forces. Both are effective to a limited degree. In the first case, however, divided authority often plays havoc with the sales force. In the second, the expense of maintaining multiple sales forces may nullify volume improvement.

Product managers are staff product specialists reporting to the marketing head. They advise and serve the marketing chief, the field sales force, and other staff groups with respect to the requirements of *one* product or product group.

The product manager has no authority over field sales supervision or over other marketing staff departments. He concerns himself exclusively with developing and recommending marketing objectives, policies, programs, and budgets for his product group. He recommends new products and product line changes, prepares price and discount recommendations, sets up the merchandising calendar, and recommends not only the preliminary advertising program, but also the timing of advertising and promotion breaks and of the field sales effort.

The product manager

Many advantages result from having one man monitor the many interlocking interests for each product. Since every product has its sponsor in major decisions, it is much more likely to get proper consideration. The marketing head, who cannot possibly be alert to the needs and opportunities of 50 or 500 products, now has expert consultation on the product aspects of each problem as it arises. Moreover, he has the valuable assistance of a specialist who keeps abreast of product developments, helps him to plan a hard-hitting product marketing effort, coordinates product needs with other product groups for him, evaluates performance against goals, and recommends new approaches to improving profits.

These important aspects of integrated marketing need not have revolutionary implications. The key requirements are that the customer's needs should form the basis for product design and manufacture, and that the customer should be sold and serviced according to his preferences. This probably will point to an integration of marketing philosophy and planning and a realignment of marketing organization. Properly carried through, it can help a company improve both sales and profits and establish a sound basis for continued growth.

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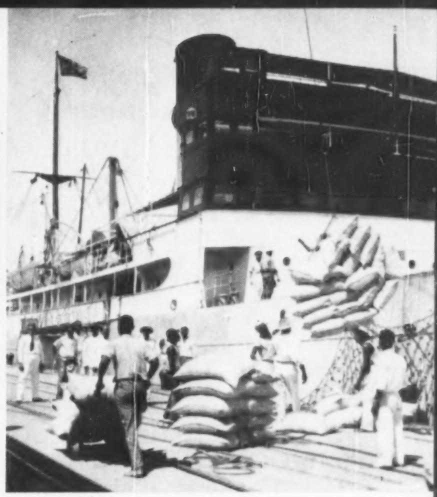

International Markets ... **Trends and practices in overseas trade**

What World Markets Expect in 1959

ALEXANDER O. STANLEY, *Contributing Editor*

THE PREVAILING mood in overseas markets is one of quiet optimism in gaging 1959 international business prospects. In contrast to a year ago, when the outlook was clouded by a glut in many world commodities, shrinking prices, and thinning markets, reports currently filed by 43 branches and correspondents of DUN & BRADSTREET's International Division, forecast a high degree of stability in most overseas areas.

Here, is a synopsis of what trends these observers think may be expected in their international, internal, and industrial activities:

- Imports from the United States will rise or at least stay level with 1958 in most markets.
- Imports from other countries will increase sharply in more than half the markets.
- Exports to the United States will mostly hold to the 1958 volume.
- Exports to other countries will be expanded in more than half of the overseas areas.
- The current dollar situation has been strengthened in about two out of five of the markets reviewed. Slightly more than one in five reports diminishing dollar reserves.
- Forecast of local sales is most optimistic, with 27 of the markets looking to increased trade in 1959. Only eleven expect sales to contract compared with 1958.
- Current inventories are classified as "adequate" in 27 areas, with only eight markets labelling inventories as thin. Heavy stocks are reported in eight instances.
- Wholesale credits and collections are described as fluid and fairly prompt in most cases, with seven markets reporting tight credits and slow collections. Eight areas classify credit and collection conditions as especially good.
- Local industrial activity is expected to exceed 1958 levels in almost two-thirds of the markets reporting. About one in three expects that industrial production will reach at least the 1958 volume. Only one area expects sharp cuts.

A more detailed analysis is given in the table on the following page.

Nearly all respondents report a government program is being developed to encourage private U.S. investments in their markets. The exceptions are Guatemala, the Netherlands Antilles, Uruguay, and Saudi Arabia. The United Kingdom gave a qualified "yes" to the query. Almost identical responses were given to the question of whether a similar program is being undertaken to attract private foreign companies (other than American) to invest locally. The exceptions were Peru, Japan, and the Philippines, which seem to prefer U.S. capital. Saudi Arabia, which said "no" to encouraging U.S. investments, is reported interested in capital from other foreign sources.

Oddly enough, complaints about Communist incursions into local markets are nonexistent in most areas, except the Far East, and to some extent in the Middle East. A question as to whether the Soviet bloc of countries, including China, was disturbing their domestic or international commodity markets through dumping practices or by cutting prices, brought negative responses from all Latin American respondents except Uruguay, a big wool exporter. Some imports from Russia have been effected in Uruguay through bilateral or exchange (barter) agreements. While these were not considered an immediate or serious hazard, subsequent news reports indicate the Soviet Union is buying 26 per cent of the Uruguayan wool crop.

Opinion here seems more concerned with what could happen to the other

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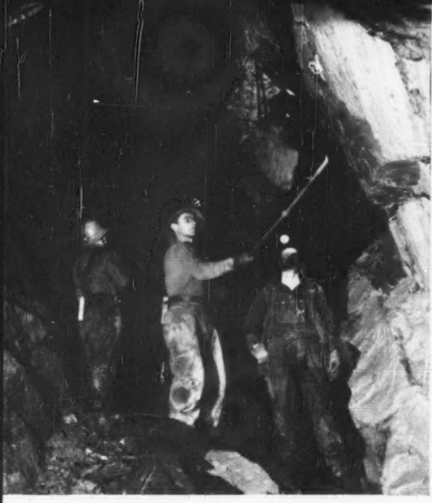

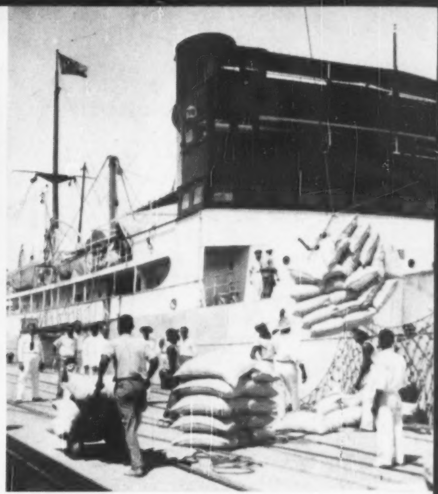

What World Markets Expect in 1959

ALEXANDER O. STANLEY, *Contributing Editor*

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What 43 Markets Foresee in 1959

The table on the right summarizes the basic findings of DR&MI's year-end survey of the branches and correspondents of DUN & BRADSTREET's International Division.

In describing the market forecasts, the following symbols have been used:

+ Above 1958 levels
0 Same as 1958 levels
— Below 1958 levels

These symbols apply to all columns with the following exceptions:

Current dollar situation: "+" indicates strengthening dollar situation; "0" indicates no change in dollar situation; "—" indicates weakening dollar situation.

Current inventories: "+" indicates understocked inventories; "0" indicates adequately stocked inventories; "—" indicates overstocked inventories.

Wholesale credit and collections: "+" indicates good credit situation and prompt collections; "0" indicates fair credit situation and fair collections; "—" indicates poor credit situation and slow collections.

*The symbols in color in these three columns signify less favorable conditions than were reported a year ago.

"Total market factor" is obtained by assigning the arbitrary values of 3, 2, and 1 to the symbols "+," "0," and "—," respectively, and totaling them across for each market area. Thus, the highest possible total for any one market area is 27. A market factor of 18 is the dividing line. A higher figure indicates a forecast of general improvement over 1958; a lower figure, a decline from 1958. It must be clearly understood that the total market factor is not weighted, i.e., the increasing or relative importance of the factors has not been allowed for. It is, therefore, difficult to establish a precise total market evaluation. For example, in one country the current inventories and local industrial activity might be subordinate to the current dollar situation or to exports to the United States, both of which might far outweigh all other factors. The reverse might be true in another country. However, by using the total market factor, it is possible to get a workable index of the market position of each country and an evaluation of its potential for 1959.

	Imports from U.S.	Imports from other countries	Exports to U.S.	Exports to other countries	Current* dollar situation	Forecast of local sales	Current* inventories	Wholesale* credits and collections	Local industrial activity	Total market factor 1958	Total market factor 1959
Canada	0	0	+	0		+	+	0	+	22	20
Latin America and West Indies											
Argentina	0	+	0	0	—	—	+	—	+	17	18
Bermuda	0	0	0	0	+	+	0	+		21	19
Brazil	0	0	0	0	—	+	0	0	+	22	19
British Honduras	+	+	0	+	0	+	0	0			20
Br. W. Indies Federation	+	+	0	+	+	+	0	+	+	24	25
Colombia	+	+	+	+	0	+	0	0	+	16	24
Cuba	0	0	0	0	+	—	0	0	0	19	18
Dominican Republic	+	+	+	+	+	+	0	+	+	20	26
Ecuador	+	+	0	+	+	+	0	0	0	21	23
El Salvador	—	—	—	—	+	—	0	0	—	12	13
French W. Indies	0	+	0	+	+	+	0	0		22	20
Guatemala	—	0	0	0	0	—	0	0	0	18	16
Honduras	—	+	—	0	—	+	—	—	+	20	16
Mexico	—	+	+	+	0	+	0	—	+	23	21
Neth. Antilles	0	0			+	+	0	+	0	18	17
Nicaragua	—	—	—	—	0	—	0	+		14	12
Peru	0	0	—	0	—	—	—	0	0	23	14
Puerto Rico	+	+	+	+		+	0	0	+	23	22
Surinam	+	+	+	+	0	+	0	0			21
Uruguay	+	+	+	+	+	+	+	—	0	17	24
Europe											
Denmark	0	+	0	0	0	0	+	0	0	19	20
Greece	+	+	0	—	+	+	—	+	+	20	22
Italy	+	+	+	+	0	+	0	0	+	21	24
Netherlands	0	+	0	+	0	+	0	0	0	18	21
Spain	—	—	0	0	—	0	0	0	+		16
United Kingdom	0	0	+	+	0	0	0	+	+	22	22
West Germany	+	+	+	+	+	+	0	0	+	25	25
Middle East											
Iran	0	+	—	0	+	0	—	0	+	20	19
Israel	+	+	+	+	0	+	0	—	+	26	23
Lebanon	0	0	0	0	0	+	0	0	0	22	19
Saudi Arabia	—	+			—	+	+	0	+	13	16
Turkey	+	+	+	+	+	+	+	+	+	18	27
Far East and Oceania											
Australia	—	—	0	+	+	+	—	0	+	17	19
Guam	+	+	0	+	+	+	0	0		18	21
Hong Kong	0	0	0	0	—	—	0	0	0	21	16
India	+	0	0	+	+		+	0	+	11	21
Japan	—	—	—	0	0	+	—	0	+	19	16
Pakistan	0	—	0	0	—	—	+	—	+	21	16
Philippines	—	+	0	+	—	—	0	—	0	16	16
Thailand	+	+	+	+	0	—	—	0		19	18
Africa											
Nigeria	+	0	+	+	+	+	—	0		18	20
Union of South Africa	0	0	0	+	0	—	0	0	0	20	18

Latin American countries dependent for their livelihood on the export of minerals and other extractives to world markets. This seems a valid concern.

A number of Latin American countries whose complaints about Soviet trade practices have made recent headlines, e.g. Bolivia and Chile, did not file reports in the current survey. Undoubtedly, their comments on this might well be even more alarming. Actually, the group of Latin American countries reviewed in this study is less exposed to the competitive machinations of the Soviet bloc, at least for the time being. But its economic woes make Latin America vulnerable to the more insidious approach which the Soviet is currently taking—swapping Russian oil for Brazilian cocoa; granting credits to Argentina to buy Russian oil machinery; offering to sop up Peru's surplus lead and zinc by outright (Czechoslovakian) purchase. These events recently made headlines.

None of the several European correspondents reports any internal repercussions from Soviet competition.

But in the Middle East and the Far East areas, complaints on this score occur with increasing frequency. In Iran, prices on various types of machinery are the sensitive point, at least among local importers. In Saudi Arabia, the complaint is about glass goods, timber, iron, and machinery. In Hong Kong, Malaya, and Burma, it is textiles, provisions, bicycles, window glass, and household goods that are under com-


RYDER TRUCK RENTAL
FORD

petitive attack. In Japan, it's silk yarn, cotton cloth, and paper. In the Philippines, several unspecified categories of goods are involved. In Thailand, it's rice and tin. The prime competitor is Communist China. We should hear more of this problem before year's end.

Latin American trade up

Despite some soft spots, U.S. trade with Latin America in 1958 was at near-record proportions, and it promises to continue offering attractive potentials in 1959. One in four marketing areas expects more trade with the United States in 1959. Most markets look for trade to hold at least to 1958 levels. Latin America figures prominently in our export picture since it currently accounts for roughly 25 per cent of the total outflow of goods overseas. And on the other side of the coin, Latin America provides almost 30 per cent of our import requirements. In the first six months of 1958, U.S. exports to Latin America totaled $2.139 billion, compared with $2.269 billion in the first half of 1957. U.S. imports from Latin America in the first half of 1958 came to $1.842 billion, as against $1.932 billion for the like 1957 period. Obviously, the Latin American trade came through the 1958 recession pretty well.

Looking at the individual markets, here are the highlights on an area factor basis:

ARGENTINA: Exchange problems and severe inflation obscure its trade position.

BRAZIL: Continued dollar difficulties, a lower level of internal trade, dim 1959 prospects.

COLOMBIA: Improving gold and foreign exchange reserves are susceptible to the trend in coffee prices, lately headed down. But an offset exists in the "Vallejo Plan" under which Colombian companies may import raw materials for manufacture and export, exempt from the 15 per cent export tax. Possible exchange yield: $5 million yearly.

CUBA: Declining world prices in sugar and deteriorating internal trade, reflecting political unease, spell a possible drop in trade with Cuba this year.

MEXICO: A widening gap in its trade balances in the first half of 1958 was checked in the third quarter when a seasonal upturn in foreign trade was reported. But improvement may be tempered by U.S. quotas on lead and zinc, and cotton and coffee market developments. The internal business picture is complicated by the probability of sharp wage increases.

Assuming the Berlin situation is peacefully settled, European respondents are most optimistic in their appraisal of the coming months. More than half the countries reporting see advances all along the international and industrial line in 1959. Only one in seven sees a possible retreat to a point generally behind the 1958 pace.

Our European trade interchange was deeply affected by the U.S. economic readjustment in 1958. U.S. exports to Europe in the first half of 1958 sagged to $2.297 billion from the 1957 comparable period total of $3.174 billion; these exclude special category items. But the import picture was hardly affected, with our imports from Europe in first-half 1958 holding steady at $1.512 billion compared with the 1957 level of $1.522 billion.

Actually, Western Europe's international payments position was strengthened, with increased net earnings on invisible transactions such as tourism and favorable visible balances of trade in world trade interchange. In spite of thinning markets overseas for some products, especially in areas heavily dependent on raw materials and commodity exports for international purchasing power, Europe's level of exports held close to the 1957 volume. And in their global exchange of goods and services, European countries, many of which import raw materials to fabricate for export, came out well ahead on the swap, especially since the cost of commodities imported to feed their several industries dropped and shipping rates declined.

It's no wonder that the primary exporting countries, such as the United Kingdom, built up gold and dollar exchange reserves to record levels. Since at least a temporary easing of the dollar problem is expected, the 1959 prospects for U.S. trade look good.

Now that the European Common Market is formalized, it will be important to watch how well this new economic partnership meshes. So far failure to expand the ECM to include Great Britain and several other European countries into a Free Trade Area has caused the English to mend their domestic business fences—hence the adoption of installment (hire purchase) sales to build up home markets for "Made in U.K." goods and the lowering of the bank rate to stimulate production and distribution.

Mideast sees trade gains

Even the turbulent Middle East sees an improvement in 1959 trading conditions. Most countries participating in the survey see increased trade in 1959 or at least a volume comparable to 1958.

Statistical comparisons for the first half are distorted by the 1956-57 Suez Canal episode. Our imports jumped ostensibly from $131 million in the 1957 period to a thumping $218 million. But when the statistics for the last half of 1958 are issued, they will probably show an adjustment to more normal and diminished levels. U.S. exports actually rose, if slightly, from $305 million to $318 million.

Looking at one area in detail, the Turkish report might be toned down a bit. That highly optimistic forecast is difficult to equate with recent reports of creditors' meetings to work out payment schedules on commercial debts. In November, the U.S. Department of Commerce said that Turkey owed 80 U.S. concerns a total of $39 million past due, with another $82 million on deliveries and credits maturing in the near future. Here, obviously, credit factors and dollar imbalances loom as important problems in the months ahead.

African exports sag

On the surface, reports currently available from Africa show a disappointing trend. U.S. exports to that continent plummeted from $347 million in the first half of 1957 to $296 million in the like 1958 period. But if the value of U.S. vessel registry transfers to Liberia were excluded from statistical comparisons, the 1958 figure reveals a slight decline of only $15 million. However, U.S. imports in the first half of 1958 improved by a $0.5 million to a level of $307 million.

Lack of responses from this area make it impossible to develop an area forecast, although the two reports filed are, in the main, quite optimistic. The exceptions: inventory position, which is reported overstocked in Nigeria, and a forecast of depressed local sales in the Union of South Africa.

During 1958, trade dislocations were deeper in the Far East than most other areas. U.S. exports to the Far East, which account for roughly 13 per cent of the total, amounted to $1.162 billion in the first half of 1958—a decline of almost 30 per cent from the peak period in the first half of 1957. Shipments to each of the three major U.S. markets in the region—Japan, the Philippines, and India—were down sharply as a result of tightened import restrictions put into effect during 1957. But imports from the Far East dipped only slightly and, at $797 million (first half of 1958), were off only 6 per cent, even though there was lessened demand for raw materials from this area, reflecting the decline in U.S. industrial production.

What about 1959? The greatest number of responses indicate good or improved business prospects this year. Nearly one in every three respondents expects some improvement to above 1958 levels, with an equal number foreseeing a drop to below 1958 levels of activity.

In summary, there are sufficient bright spots in the 1959 international trade picture to suggest that business can plan, barring political eruptions, for some degree of acceleration in world trade. END

MINIATURIZATION
continued from page 45

The first problem is encountered right at the raw materials receiving dock. Since a day's production fits into a hat, not much is required in the way of raw materials. Suppliers must be found who will produce and ship special steels and other materials by the pound rather than by the ton.

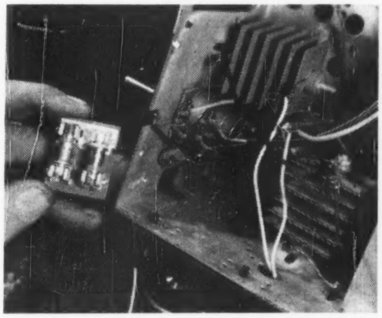
Early Monday morning, hours before the beginning of the work week, every production machine in the plant is started up—it takes that long for them to settle down to the high accuracy needed. Once the machines are started, they run continuously until Saturday night—this plant runs three shifts. An amazingly high number of the workers are inspectors operating costly measuring instruments.

The entire plant is air conditioned and kept extraordinarily clean, and finished bearings are assembled under microscopes in specially sealed rooms whose temperature and humidity never vary. Specially filtered air is pumped in under slight pressure so that, when the air-lock doors are opened, the clean air flowing out prevents any dust-laden air from coming in. No smoking is allowed, and all workers wear lint-free uniforms and hats. Before the bearings leave the room, they are sealed in dust-tight plastic containers.

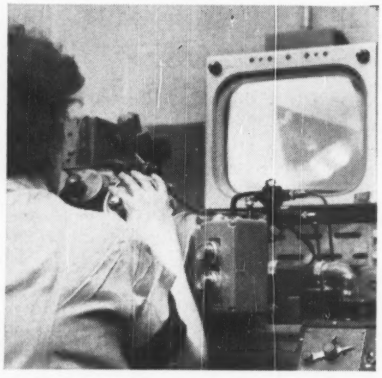
Production headaches

The MPB plant illustrates practically all the production problems associated with miniaturization:

- It takes a long time to get a production line for miniatures running smoothly, longer than for conventional products. Most manufacturers admit that production delays are much greater than were anticipated.
- Production savvy is essential. J. Robert Tomlinson, president, The Barden Corp., Danbury, Conn., states that this is the key to a profitable miniaturization



MILITARY NEEDS *for miniature products generally stimulate civilian markets. Developed by Audio Devices, Inc., for aircraft and missiles, the tiny silicon rectifier at left replaces the two large "stacks" in the TV receiver at the right.*



MECHANICAL EYES: *To aid the human eye, all sorts of magnification devices, such as microscopes, optical comparators, and this Dage closed-circuit TV system, in use at Fidelitone's phonograph needle plant, are needed. A second receiver can be connected to allow supervisors or inspectors at a distant location to check the production line.*

venture and can't be overemphasized.
- Capital investment is high (and in the early stages it may appear that the money might better have been invested elsewhere for a faster return).
- Costly air conditioning is usually necessary, although not all the plant has to meet the critical environmental conditions of the final assembly rooms.
- Although a critical component is readily available in conventional sizes, suppliers may not be able to meet requirements for size, weight, performance, accuracy, or delivery for the miniature version. Thus, the manufacturer may be forced to make it himself.
- It may be necessary to build all or a

Why Miniaturization?

Besides countering complexity, miniature products offer benefits for military, industrial, or medical uses.

- Miniature devices can fit into tight places to measure or monitor industrial or human processes.
- Miniatures are frequently more sensitive or more accurate than standard counterparts.
- Low power requirements make them valuable for inaccessible or remote installations.
- Miniature components are easier to spin or move faster.
- Miniaturization facilitates modular construction, important in efficient preventive maintenance.
- In many cases, the miniature version is inherently more reliable than its larger progenitor—a special advantage in unattended equipment.
- Miniatures have greater resistance to shock and vibration. Conversely, it is easier to mount miniature equipment for cushioning against shock and vibration.

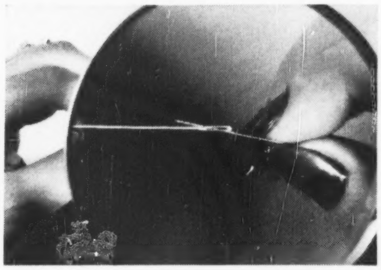
The Billion Dollar Miniaturization Market

Here are some of the products in which miniature parts are being used or are destined for use in the future.

- Cameras, motion picture and still
- Radios, TV sets, and hi-fi
- Hearing aids
- Portable electrocardiographs
- Artificial body parts
- Electronic stethoscopes
- Missiles and satellites
- Computers and office equipment
- Stock market reporting devices
- Post office equipment
- Aircall and factory paging systems
- Telephones and telephone exchanges
- Aviation controls and indicators
- Process recording and remote control equipment
- Telemetering equipment
- Machine tool controls, particularly numerical controls
- Geiger counters and other radiation detectors
- Automatic automobile controls

substantial part of the production machinery at the usual high cost of nonstandard machinery. (Capital investment per worker is unusually high.) However, once this production organization is functioning properly, it can usually be shifted to make other miniature products or defense items.

- Inspection and quality control costs are very high, averaging 20 per cent of manufacturing costs, but frequently running a good deal higher—30 per cent at Barden Corp., for example. All sorts of high-power microscopes, optical comparators, and closed-circuit television systems with magnification (see photo on page 68) are needed for careful and continuous inspection of parts at all stages of manufacturing.
- Miniature production lines are extremely difficult to automate. Workers are still needed, and they must be carefully selected, trained, and to some extent pampered. At Fidelitone Corp., Chicago, prospective operators are given



MIDGET DRILL: *Tiny parts call for tiny tools, such as this carbide-tipped drill, which easily clears the eye of a needle. It is made by Super Tool Company in Detroit.*

three psychological tests in addition to careful eyesight examinations. The latter are repeated every three months, according to Chief Engineer Charles G. Weigand. Experienced toolmakers, skilled as they are, have to be retrained to work to extreme accuracies on tiny tools and jigs.

"Girl talk" aids production

Miniature Precision Bearings believes that married women are best at the repetitive, boring jobs. Production boss H. D. Dardani claims they have the highest degree of "sit-ability." Workplaces are deliberately arranged so that the women can talk while working.

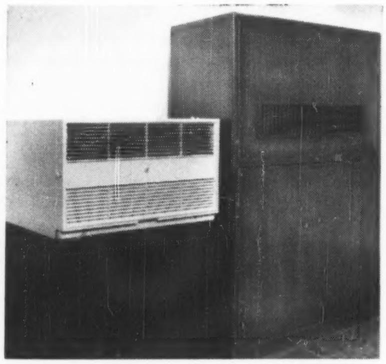
Some manufacturers pay a premium wage to workers in miniaturization lines.

- There is no handy pool of miniaturization engineers and production supervisors from which to draw. Practically all companies in the field have trained their own.
- Customers frequently need special training or instruction in the handling of miniature parts, according to Leon Greenbaum, chief quality control engineer at Allen Manufacturing, Bloomfield, Conn.

On the other hand, there are some compensating factors:

- Shipping costs and damage go down, and transportation becomes a lesser factor in plant location.
- The value of some old multi-story, low-ceilinged, close-columned, low-floor-strength factories goes up. These plants, no longer economical for the new, bigger machinery making normal-size products, may be very suitable for a miniature parts assembly line.

As an example, take Western Electric's 50-year-old Hawthorne Works in Cicero, Ill. Five years ago, the company was trying to figure out how to replace this oldest of all its plants. Now much of Western Electric's miniature produc-



MINIATURIZATION *is an advanced phase of the historical trend of getting more out of each pound of equipment—as shown by the contrast between a 1959 Carrier air conditioner (left) and the first Carrier room air conditioner of 25 years ago. Both have the same cooling capacity!*

MEDICINE *is a big and growing market for miniature devices, such as this Gulton heart catheter microphone, being inserted through a vein in the patient's arm. The mike is so small it damages neither vein nor heart.*

tion is concentrated there. Because the products are so much lighter and smaller, conveyers now can run them from one floor to another, in effect achieving straight-line assembly.

● In addition to lower operating costs and ancillary capital savings, salesmen can bear down hard on the increased reliability and ease of servicing associated with most miniature equipment.

By-product: better servicing

Miniaturization is spurring a trend toward a new, more efficient way of servicing. As the complexity of equipment grows, finding and training servicing personnel becomes an increasingly arduous task. The answer is "plug-in" servicing—locating a defective sub-assembly by readily recognized symptoms and replacing it with a duplicate plug-in. The defective assembly is either repaired at leisure, sent back to a central repair depot or the factory, or thrown away.

The military is tending toward the latter course, and since military techniques so frequently influence industrial practice, it is worth noting the point below which the military claims it is cheaper to throw away rather than repair an assembly. This point of diminishing returns is presently set at the incredibly high figure of $300, yet some military men consider this too low and want to raise it to $1,000. Industry doesn't have the military's logistic problems, but this indicates the trend in "throw-away" servicing.

Miniaturization, so inextricably tied into today's main industrial forces, is one of tomorrow's profit frontiers. For the company looking to break into new markets or industries or beat out its present competitors, it may offer promising opportunities. With the overwhelming force of modern technology on your side, it's a lot easier to sell and hold on to new customers. END

Sales & Distribution
Marketing notes and comment

New Ferment in Retailing

ALSO: *Advertising in Recessions; Christmas Spirits*

FOR RETAILING, the year just ended was one of pronounced change. Manufacturers bore down heavily on selling costs and explored new, economical channels to the market. At the same time, shoppers revealed a new price sensitivity and bargain-hunting instinct. As a result, it seemed to many merchants that the ground on which producer and consumer met was based on shifting sands.

Among the major shifts during the year was the virtual demise of Fair Trade, which brought sizable gains for discount houses, the addition of more nonfood items in supermarkets, a period of soul-searching for department stores, and a muddled pricing picture.

While supermarket chains were getting into nonfoods—witness the expanding Grand-Way discount units operated by Grand Union—discount houses increasingly took on foods. Variety stores—long out of the 5 & 10 class—began experimenting with canned goods and other foods. F. W. Woolworth now offers a broad line of canned goods.

An example of the concentration of manufacturers on the big supermarket business was the appearance of "canned" underclothes on supermarket shelves. The American Can Company developed the sealed, rigid cardboard canister for bras, panties, children's briefs, socks, and similar items. The test marketing in Philadelphia and New York revealed little consumer resistance.

As the supermarket became more and more a bright, streamlined version of the old general store, items other than food steadily increased in volume. Within a decade, according to the National Association of Food Chains, they will probably account for the larger share of floor space.

During 1958, department and large specialty stores sought ways to augment their income and counteract the stiff competition of discount houses. Department stores concentrated on private brands of appliances, added food lines, began charging for previously free services, and turned increasingly to in-the-home selling.

A new survey of 299 department and specialty stores by the National Retail Merchants Association shows that they are attempting to offset rising operating costs by instituting charges or limiting services once offered to customers at no charge. There is a marked trend toward charging customers for such services as COD delivery, pick-up of returned merchandise, and layaways.

The National Association of Direct Selling Companies reports that door-to-door selling increased by a larger margin in 1959 than did total retail sales. About two-thirds of the nation's department stores are already taking advantage of the direct selling approach—chiefly through in-the-home selling of such items as draperies, storm windows, and food freezer plans—either in response to inquiries generated by radio and TV advertising or after direct telephone solicitation by the store.

NEITHER BRACKETS NOR BOLTS *are needed to keep these new identification signs affixed to salesmen's cars. When the car is used for non-business purposes, the sign, held on by magnets, can be lifted off. Available from Zeta Northern Company, Erie, Pa.*

Among the other important events on the retailing front in 1958 was the action of the Federal Trade Commission in cracking down on the many fictitious "list" prices that blossomed after the breakdown of Fair Trade. The announcement of specific rules for realistic pricing met with ready acceptance from many business men. Prices also made news with the passage of the Monroney Bill, which requires the ticketing of full factory prices on new cars.

The issue of Sunday selling, which has

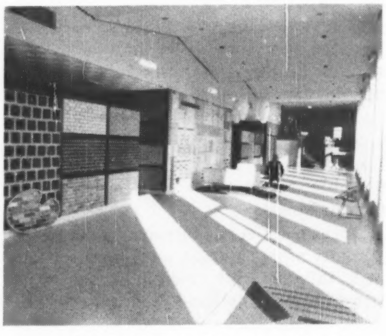
divided many retailers (DR&MI, February 1958), also moved into the spotlight later in the year when the New Jersey legislature passed a law prohibiting Sabbath business. In most sections of the country, department stores and large specialty store owners are opposed to Sunday selling, while the new highway store operators and some discounters favor it.

One of the first attempts to find out how the consumer actually feels about shopping on Sunday was made last year by the University of Michigan. A random survey of shoppers in the Detroit area showed that the majority felt that it is usually or always "wrong" for a business to remain open on Sunday. However, only one-third favored laws making Sunday closing compulsory. Disapproval of Sunday selling increased in older age groups and was most pronounced among people in lower socioeconomic levels, the survey showed.

Other signs of the future in retailing also could be seen during the year. Some observers estimated that within five years the new burgeoning credit card would become a commonplace in supermarkets. Meanwhile, supermarkets went ahead with improvements in day-to-day service, such as the new underground conveyor belt used in a Montreal, Canada, supermarket to deliver purchases to shoppers' cars.

Spare the Ax

Among the built-in stabilizers that keep our economy on a reasonably even keel, advertising has had less than its full share of credit. In the past, the advertising expenditures of virtually all companies were linked directly to sales volume. Consequently, a slackening of sales usually brought severe cuts in total advertising volume. But during the 1953–54 recession, the total spending for advertising held up despite the drop



GALLERY OF BRICKS: *The dusty brickyard of yesteryear is turning into a clean, efficient "supermarket," where architects, contractors, and amateur builders can see one of man's oldest products in its newest setting. Recently opened in Detroit, the Kurtz Brick Company's shopping center covers ten city lots.*

in manufacturers' and wholesalers' sales. Many companies discovered that when business is catching its breath, it's a good time for the aggressive "growth" company to make inroads in the market.

Now a new study in depth attempts to trace in detail the specific effects of advertising expenditures on company growth. By examining both the sales and advertising volume of 121 companies over an eleven-year period (1947–57), the study shows that companies which did not panic and resisted the impulse to slash their ad budgets during recessions not only rode out the economic weather better, but actually enjoyed larger gains when recovery returned than did those which put the cost-cutting ax to the ad budget.

In fact, the detrimental effects of reducing advertising are even more pronounced immediately following recessions than during an actual decline.

During the recessions of 1949–50 and 1953–54, even the sales of consistent advertisers fell off. Apparently, advertising expenditures were not able to stem completely the tide when it was ebbing strongly. In the earlier period, the sales of companies that did not cut advertising in the recession fell off about 4 per cent. But this was much less than the average of 14 per cent among the companies that cut back on advertising.

A copy of the complete study can be had free from The Buchen Company, Daily News Building, Chicago 6.

Less Work for Santa

In the recent holiday season, business evidently tightened purse strings and trimmed business gift lists for the first time in several years. At the start of the season, the trade paper *Premium Practice,* spotchecked companies across the nation and concluded that the Adams-Goldfine gift-giving affair and the recession would cut spending about 4 per cent.

But despite this trimming, the total spent on business gifts in recent months is still staggering. Estimates run from $288 million to nearly $2 billion. Virtually every company — even those which won't let their own employees take gifts—plays Santa to some extent.

Among the companies that keep a close tab on business gift spending is Schenley Distillers Company, which enjoys a sizable slice of the estimated $300 million that management spends on gifts of distilled spirits in the holiday season. Schenley's records reveal that the heaviest spenders for liquor gifts are trucking companies, printers, paper manufacturers, food wholesalers, commercial laundries, fuel oil distributors, building maintenance companies, construction contractors, and garment manufacturers, in that order. Companies in these groups spent an average of about $460 each for liquor gifts. —T.K.

When the College Comes to the Plant

A workplace by day, a university classroom by night—this is what one Midwest manufacturer offers his employees in the belief that broad education is the best productivity incentive.

DISSATISFIED employees can become the most productive workers.

This is the unorthodox theory behind a plan employed effectively by a Midwest manufacturer to improve productivity and reduce turnover rates by capitalizing, in effect, on employee job frustrations.

To the employee who is unhappy with his status, income, and prestige, Gerald Gidwitz, chairman of the board of Continental Materials Corp. and Helene Curtis Industries, Inc., Chicago, offers not just the usual mollifying fringe benefits, but a unique, self-motivating educational program.

In cooperation with Roosevelt University, Chicago, the two companies began last year to offer their employees a general college education, with credits acceptable for degrees, through courses conducted by Roosevelt instructors right in the Helene Curtis plant. The courses are given evenings in company classrooms, and all expenses for tuition, books, and other materials are paid by the company—provided the employee passes the course.

There's nothing new, of course, in the idea of company-sponsored education for employees. For many years companies have offered on-the-job training and frequently have paid the tuition of employees taking courses at local schools. Hundreds of Helene Curtis employees have attended college tuition-free under the company's older on-campus program. But the new Curtis in-plant program has some significant advantages over the old.

Reading, writing, and Russian

The theory behind the plan is a simple one: An employee who is actively furthering his education is likely to be "more on the ball," no matter what subjects he is studying. Accordingly, there's no restriction on the courses chosen by Curtis workers, although the in-plant classes are only given in subjects in which enough employees have shown interest. Most of the twelve courses given so far have been in such subjects as accounting, business administration, business law, and psychology. However, seven students are currently enrolled in an advanced Russian language class.

The courses are open to all Curtis and Continental Material employees, from shipping clerks and production workers to clerical help and executives. Leon Baker, executive assistant to Mr. Gidwitz, is one recent student. Some of the nearly 200 employees who have attended classes in the past year have had less than a high school education, while others have college degrees.

The Continental-Curtis policy, Gidwitz believes, will give the employee a wider perspective and make him more aware of his potential for growth and development.

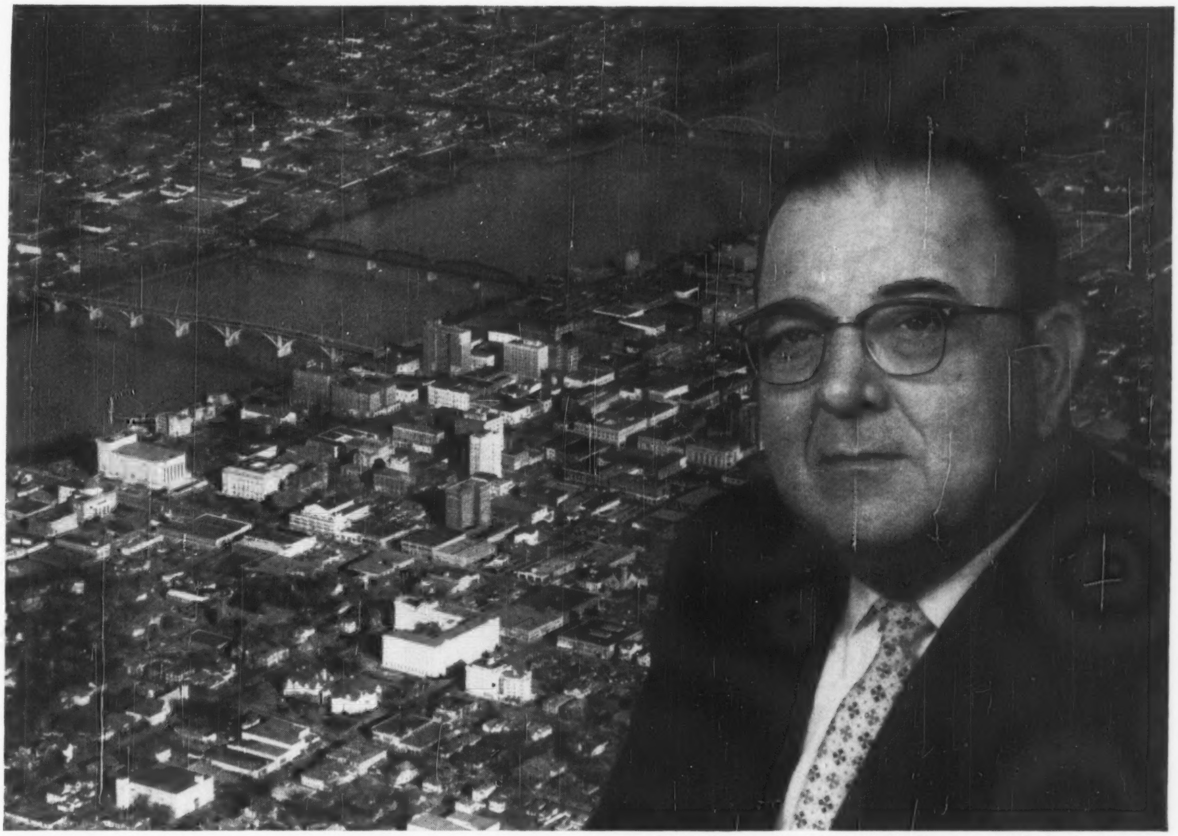
"Most on-the-job training and selected on-campus courses do not give the employee the satisfaction a full college program does," Gidwitz says, "and an in-plant program does away with transportation and traffic problems that can discourage employees from sticking to evening courses undertaken on their own."

Go-getters, not goldbricks

The Continental-Curtis plan is based on the belief that management should aim for a situation in which the motivation and the satisfaction of employees are in balance. Greater on-the-job satisfaction to build up his productivity should be provided for the employee whose interest in his work needs stimulation, but at the same time care must be taken not to create a contented goldbrick who produces little.

By the intelligent use of education, Gidwitz feels that he can materially reduce employee turnover as well as boredom and resulting inefficiency, absenteeism, and poor workmanship.

This attempt to increase productivity by stressing the importance of the individual worker, rather than labor as a group, is in keeping with the human relations approach that an increasing number of companies have lately adopted. The natural desire of the average worker for a better income and greater social prestige has been tied in with a plan that makes these goals more readily attainable. —JOHN R. HAYES



G. W. Stewart, Assistant Traffic Manager, Little Rock, Arkansas

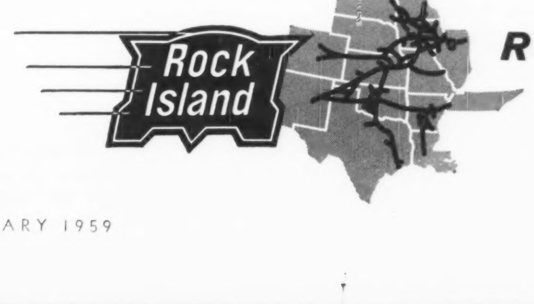
There's room for you in
ROCK ISLAND COUNTRY–
for example

LITTLE ROCK

. . . where business expands and profits! One of the finest industrial areas in America is in Little Rock, Arkansas—close in to the city, yet far enough out to avoid traffic congestion. Beautifully planned and developed, and already a new home for several large firms, the Little Rock Industrial District provides everything you'd require of a new location.

The area is laid out for manufacturing, warehousing and sales office operations. All utilities and paved streets, including lead trackage to your boundary, are provided without cost to you. Adding it all up, the ample labor supply, proximity to the big Middle West, South and Southwest market areas . . . plus excellent rail, truck and air service, make this area a key consideration for any company planning to move or expand.

600 acres are still available. If you are interested, Rock Island's G. W. Stewart will gladly show you choice sites and explain how the Rock Island Lines would serve the location you choose. Mr. Stewart and his staff have full information about this and other Rock Island property in the general area. His group is typical of Rock Island specialized personnel, who, in a single year, helped locate $404 million of private industry along Rock Island tracks. Write to:



Industrial Department 116
ROCK ISLAND LINES
La Salle Street Station, Chicago 5, Illinois

NUCLEAR POWER
continued from page 39

salt and sulfur mining are other examples of large processing industries where nuclear energy might become economically applicable in special situations.

The competitive pull

The years intervening before the nuclear power industry can pull up even with its competition are critical. How long will the economic struggle take?

Philip Sporn, president of American Electric Power Company, in whose industry nuclear power's battle for survival will be mostly fought, looks for only gradual improvements over the next twenty years. But they will add up to a major technical and economic achievement, he feels. His estimates: By 1975, 5 per cent of U.S. electrical capacity will be nuclear; between 1975 and 1980, capacity added will be 25 per cent nuclear.

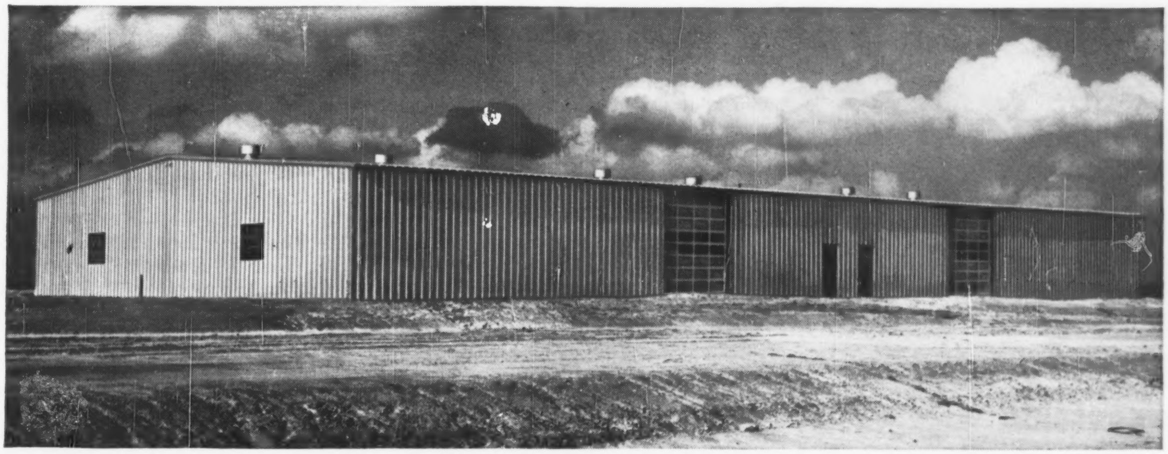
The break-even point with the highest-cost steam power plants may be as near as 1960, according to one recent study by John E. Ullman of Columbia University. "By 1968, even the highest cost of nuclear power will be about the same as the lowest costs of conventional steam power in that period," he predicts.

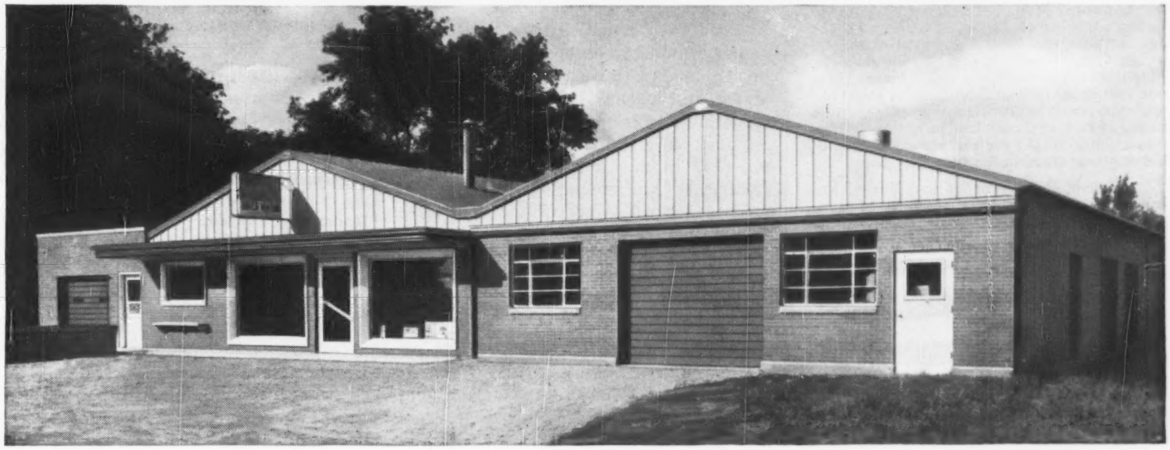
Faith, hope, and capital

At any rate, it seems certain that the next ten years, at least, will be the hardest. It will take both capital and faith to bridge the gap. Of faith there seems to be an unending supply, despite chronic difficulties. Such conservative groups as the utilities' Edison Electric Institute see a "bright future" for atomic power. Proof of their faith can be seen in the utilities' half-billion dollar commitment to nuclear power projects.

Most of the authorities on world resources agree that by the year 2000 readily accessible deposits of all fossil fuels will almost certainly be nearly exhausted. The world's energy demands are going up at a furious rate (estimates range from about 12 to 38 billion tons of coal-equivalent a year by 2000), and atom power must be ready to take over well before the cut-off point. This is the reasoning behind interim support for atomic power development. Since the costs of nuclear power development are enormously high, private industry can only figure to lose until the break-even point is reached. Hence the Government's vital role in the task of developing industrial uses of the atom. Almost sole responsibility was entrusted to the civilian-dominated AEC on January 1, 1947, by the McMahon Act passed by the U.S. Congress.

Under the Atomic Energy Act of 1954, the AEC began to work in cooperation with industry. By mid-1958,





PLAIN or FANCY... Butler is the lowest-cost way to build well

Planning a materials-storage facility in an industrial area, or a combination office-warehouse in the suburbs? With the Butler Building System you can build either—suit your budget or your building requirements—without sacrificing quality.

Butler buildings are particularly well suited to warehousing. The clear-span interiors—without a single column or truss—give you more usable storage space per square foot of floor area than traditional construction provides.

Pre-engineered, economically mass-produced Butler components eliminate costly preliminary engineering and custom fabrication. Precision-made, they permit fast assembly. Your new warehouse is in business, earning profits, weeks—even months—sooner than traditional construction methods permit.

The load-bearing, rigid-frame permits economical curtain-wall construction. Butler metal panels, brick or other materials can be used to create plain or fancy exteriors. Expansion can be accomplished easily and economically. Banks of overhead doors can be installed without expensive, special columns or partitions.

Get the full story on Butler warehouses from your Butler Builder. Ask him to show you the special sound-slide film on warehouse planning and construction. He's listed in the Yellow Pages of your telephone directory under "Buildings" or "Steel Buildings." Or write us direct.

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only five industry-Government contracts had been executed under the Government-sponsored Power Demonstration Reactor Program, and only about 77,600 kilowatts of electric power output were being produced from civilian nuclear power plants and reactor experiments.

No new additions are expected in 1959. But beginning in 1960, the AEC timetable is to be stepped up to 384,100 kilowatts net output by the end of 1960; 826,500 by 1961; 1,130,500 by 1962; and 1,326,500 by 1963.

This would amount to roughly $500 million at present costs per kilowatt of capacity installed. Over a period of five years, will this be enough to support a new industry faced with the high cost of men and materials, research and development?

Apparently not. Only about six companies are deeply involved in the atomic power reactor business in the United States at present. The old hands like General Electric, Westinghouse, and Babcock & Wilcox, who have headed the field in the manufacture of heavy electrical equipment, have invested heavily almost of necessity. They have also reaped the greater share of military, naval, and civilian contracts. Of the working nuclear reactors already built or under construction, 33 list either GE or Westinghouse as the principal contractor. Nineteen of the 33 are reactors made or being made by Westinghouse for U.S. Navy submarines, a field in which Westinghouse has established a commanding lead. GE is generally given credit for being the first U.S. industrial concern to enter the power reactor business on a serious and long-term basis. Their first contract in 1946 was with the AEC's predecessor, the Manhattan District, to study several different designs of nuclear reactors, or piles, for the generation of electric power.

Westinghouse followed as a close second in the Fall of 1947 under an AEC contract to build a land-based prototype of a submarine reactor. It recently announced work on new reactor design concepts which are part of six major development and construction programs under way at its atomic power department.

Two new reactor designs

Among the new reactor design programs is a project involving the use of thermoelectric materials in the reactor fuel elements to convert the heat of splitting atoms directly into electricity. Another new design makes use of an organic moderated fluid bed reactor in which conventional control rods are not necessary, and the fuel, in pellets no larger than marbles, is surrounded by oil. A development study of this reactor is being made by Westinghouse for the city of Burlington, Vt.

Westinghouse researchers believe thermoelectric substances, which can convert the heat of a burning fuel, or other high-temperature source of heat, directly into electricity, may some day be put to large-scale, economic use. Such materials produce electricity simply, silently, and without moving parts of any kind. Scientists at the Westinghouse Research Laboratories are working on a new, "essentially unexplored" class of these materials which they are hopeful will operate at temperatures in the range of 2,000°–3,000° F.

The third entrant was an outsider to the highly exclusive electric utility service field. This company, North American Aviation, concentrated its efforts on the sodium-graphite type reactor. But by 1957, all that North American expected of its new Atomics International Division was that it "would almost break even." Although the company ranks third in power reactor manufacture, Atomics International, according to its general manager, Dr. Chauncey Starr, will still have to develop atomic power equipment that is dependable and economical enough to interest the utilities.

THE AUTHOR • As a freelance writer in the field of science and technology, Ernest Le Monnier has specialized in interpreting the intricacies of science for the layman. As an advertising executive, he has written copy and handled accounts for manufacturers in a variety of industries, including electronics and nuclear power equipment. Mr. Le Monnier attended Princeton University and studied electrical engineering at Cooper Union.

More competition in the limited marketplace comes from makers of boiler room equipment, such as Combustion Engineering and Babcock & Wilcox (who will build the power plant for the nuclear ship *Savannah* in conjunction with De Laval Steam Turbine Company). All of these names are long familiar to the electric utility companies.

Room for the little fellow

Still other, smaller companies are eager to learn something of the new technology. Although they can't afford costly nuclear research, many are able to get into the act by undertaking design studies, development, manufacture, and test operations under contracts with the AEC. Typical are Alco Products, Inc., and Griscom-Russell Company, which were selected by the AEC to carry out preliminary design and analysis of major non-nuclear components for liquid-sodium cooled reactors. In all, fifteen companies made proposals following the AEC invitation for the job issued on May 8, 1958.

Griscom-Russell's experience indi-

cates the problems to be faced by manufacturers hoping to supply components for the power reactor field. To hold their best customers in the electric power industry, Griscom-Russell must prepare for the nuclear future. But a limited R&D budget can go only a little way in the new technology. Some costs are underwritten by the AEC for development studies and the like, but the rest is out-of-the-pocket expense that may not be recouped for ten years or more. Although the money risk is small—everyone concedes that nuclear power is inevitable—waiting out the interim can put a serious strain on the resources of most companies.

Fortunately for Griscom-Russell, some of the development work may pay off in a shorter time. A new automatic inert-gas welding machine developed specifically to solve a nuclear power problem shows promise for other kinds of fabrication. Another gun-drilling development to satisfy nuclear precision demands is cutting costs on the production line today.

The team effort

One way around the high-cost problem is the multi-company development team approach. Power Reactor Development Company, composed of seventeen electric power companies and six manufacturers, is one such nonprofit corporation. Organized in 1955 to build, own, and operate the fast breeder reactor of the Enrico Fermi Atomic Power Plant, this group expects to produce 90,000 kilowatts of nuclear power after start-up in 1960. Another nonprofit group active in the same project is Atomic Power Development Associates. For nearly seven years this group of about 40 electric companies, manufacturers of electrical apparatus, and engineering concerns has made nuclear power design studies. The AEC contributes to this about $4.5 million for special research and development work. The Detroit Edison Company will design and build the non-nuclear part of the plant in this cooperative endeavor.

Scientists at the B. F. Goodrich Company Research Center, Breckville, Ohio, believe development of industrial applications for the radioactive by-products of nuclear experimentation will reduce the operating cost of the nuclear power program. Successful vulcanization of automobile tires by nuclear radiation was achieved for the first time, last year in the Goodrich laboratories.

Project Plowshare

Industry has had its curiosity awakened by another phase of the nuclear power program—the AEC-sponsored Project Plowshare, which would investigate a number of specific industrial uses for the atomic bomb itself.

This project is the outgrowth of an

Coming next month

WHAT THE MISSILE PROGRAM MEANS TO INDUSTRY

Directly or indirectly, your company may soon be feeling the impact of the current defense shift from aircraft to guided missiles. Here are the facts on Government missile spending, ways of getting into the program as a subcontractor, new missile-born technology that could spell important future opportunities for your company.

in the February issue of Dun's Review and Modern Industry

experimental explosion of a small atomic bomb 900 feet below the surface of a Nevada mesa on September 19, 1957. The original intent of the blast was to determine if weapons tests could be carried on without releasing dangerous fallout. The results not only proved that all the bomb's radioactive fallout could be trapped beneath the surface, but revealed intriguing possibilities for industrial application of underground atomic explosions. They suggested that an entire ore body might be pulverized by larger atomic explosions. Its precious elements then might be brought to the surface by pumping in water and bringing up the carrying minerals in solution or suspension, much as sulfur is now mined by the Frasch process. Whether this technique would work with other types of rock remains to be tested.

Major oil companies are reported to have applied to the AEC for permission to test the possibility that the underground explosion of a hydrogen bomb, which would produce a minimum of radioactive contamination, might generate such intense heat that oil trapped in deposits of shale, tar sands, and exhausted deposits would be released.

Harnessing the heat

Other industrialists are intrigued by the possibility of harnessing the energy produced by the terrific temperatures created by the explosions. Three months after the Nevada test, the rock still held considerable heat. Researchers who envision underground hydrogen explosions as a source of power believe this heat could be converted to useable energy through a transfer agent—steam, carbon dioxide, or even nitrogen. This, they think, could be fed through the hot, crushed rock, led to the surface to drive a turbogenerator, then recycled back underground. By blasting deposits, like salt, which naturally provide their own transfer agents, an efficient and low-cost form of energy might theoretically be produced.

Some chemical raw materials also might be produced cheaply underground by using a nuclear explosion to heat the material in which they are found to its decomposition point, researchers believe. The production of radioactive isotopes used by chemical and pharmaceutical companies might also be facilitated by below-the-surface explosions.

Researchers at the University of California are currently at work on Project Plowshare. Industry has been invited to participate in the development program, and fourteen companies so far have offered facilities and research plans.

The European markets

Early entrants to the select circle of reactor makers were lured to some extent by the potentially huge foreign markets for their wares. Europe looked

best of all. Because of high fuel costs in Europe, Karl Mayer, now with ACF Industries, rated it a better potential market for 15- to 20-mill nuclear power than any other continent, including the Americas. The estimated European market for 9- to 14-mill power loomed even larger than the combined market in the rest of the world for the years 1960–70 in his projections.

The biggest difficulty in opening this vast European market is, of course, the same one that affects any transaction—the lack of money, dollars in particular. Most European nations, moreover, have a natural distaste to being directly dependent on the United States for their fuel supply and consequently have begun to foster nuclear industries within their own borders, beyond possible U.S. restriction or control. Britain, for whom nuclear power at two or three times U.S. conventional electric prices was attractive, wasted little time in making her own reactors.

France has had two small gas-cooled reactors in operation since January 1956 and July 1958. The Soviet Union claims to have had an experimental 5,000-kilowatt reactor running since June 1954 at Obninsk and recently announced at Geneva it has a 100,000-kilowatt reactor in operation.

What the smaller European countries seem to want most from us is our immense technical knowledge of nuclear processes.

Last November, Congress approved an international agreement between the European Atomic Energy Community (Euratom) and the United States as the first step in a broad program of cooperation in the peaceful uses of atomic energy to be carried out with the six Euratom nations, Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands. The maximum target proposed by Euratom is 2.5 million kilowatts of electric capacity installed by 1965. This nearly equals the maximum probable construction in the United States by the same date, as it is only 40 per cent of the British goal. For Britain, of course, there is a clear and present need for installed capacity, while in the United States there is not.

At the moment, eight basic reactor types are being investigated here. But whether it is one reactor type, eight, or 1,728 (the possible combinations an atomic scientist once calculated could be made), the complexity of nuclear power at this early stage is bound to be immense. Perhaps in a decade simplification will have been achieved.

But by that time it looks as though we will have to face the same problems all over again. Even more complex economic, political, and technical problems are foreseen, which may keep thermonuclear or fusion power beyond our grasp for many years to come. END

Companies in increasing numbers are turning to new products to help them widen profit margins and capture markets, this DR&MI survey shows.

New Products: Profit Bait for '59

NEW PRODUCTS are figuring in the plans of more and more companies striving for higher profit margins, corporate growth, and even survival, a new DR&MI survey discloses.

A random sample of 629 companies in all twenty of the manufacturing categories of the Department of Commerce Standard Industrial Classification shows these companies have increased the number of products they manufacture by nearly one-third in the last five years. And next year they plan to increase them by approximately another 5 per cent.

A quarter of the companies put out new products in the last five years; a fifth of them will do so in 1959.

Point of diminishing returns

There are sound reasons for this increased emphasis on new product development. One recent analysis, by the management consultant firm of Booz, Allen and Hamilton, has pointed out that, in general, companies need to maintain a steady flow of peak-profit additions to the product line. Reason: As established products reach their maximum sales volume, profitability begins to drop off as a result of increased competition, reduction in share of the market despite increased volume, saturation of the market, and similar conditions (see chart below). Thus, the "growth" industries—drugs, chemicals, electrical machinery, and electronics—have been heavily "new product" oriented, this study points out.

The leading innovators

The companies surveyed by DR&MI were asked to list only new products—not style or model changes. Also, the total number of products in the line, in some cases, remained the same although new products were added. For example, one housewares manufacturer, who put out 25 products in 1953 and 25 in 1958, points out that almost all of the original 25 are now obsolete and have since been replaced with new products.

The survey shows that 159 of the 629 companies were responsible for all of the 1,275 new products put on the market in the last five years—an average of more than eight new products per company. In 1959, 128 of the companies will put out a total of 355 new products. A few say they have new products in the works but are unable or unwilling at present to tell how many will be put on the market this year to compete for customer acceptance.

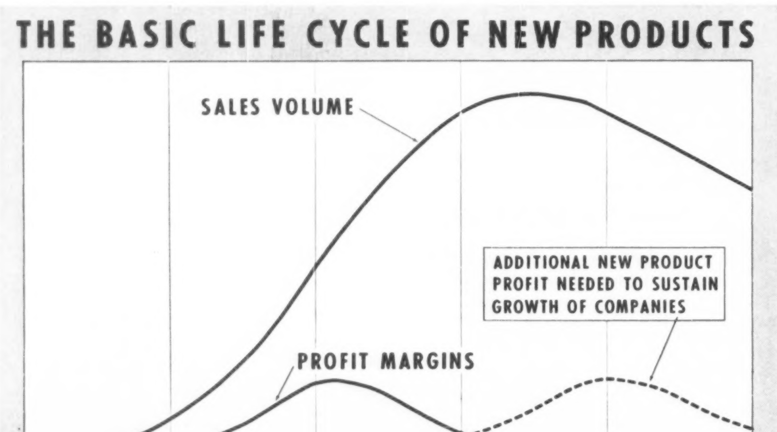
Indicative of the accelerated development of new products is the survey finding that nearly half of those who are expanding their lines this year have made no changes in the last five years or have previously marketed fewer items.

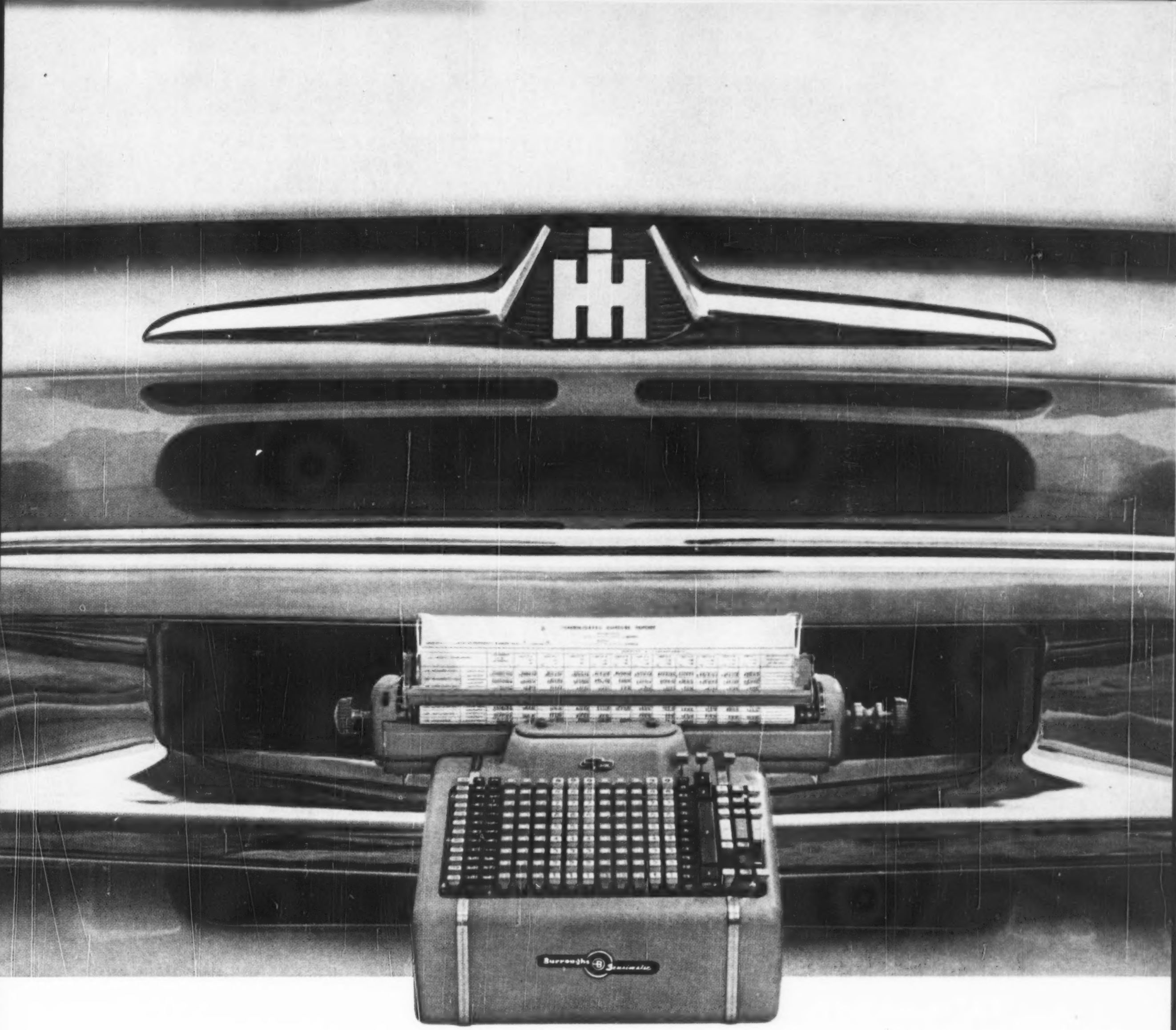
The pace-setters

Here are the industries which have introduced the greatest proportion of new products in the last five years and which will add to their lines in the coming year.

- Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks.
- Transportation equipment.
- Electrical machinery, equipment and supplies.
- Machinery, except electrical.
- Chemical and allied products.
- Rubber products.

While one company reported introducing 173 new products in 1953–58 and another reported 100, the median was three. The median for new products among companies that will introduce them in the next twelve months is two per company. —A.G.L.





INTERNATIONAL TRUCK DIVISION cuts equipment costs 50% with Burroughs Accounting Machines

The U. S. over, there's no mistaking the familiar and long respected symbol that identifies International Trucks. The Motor Truck Division of International Harvester Company—a firm well known, too, for tractors, farm machinery and construction equipment—is today the third largest producer of trucks in the U. S. It offers operators the most extensive truck service organization in the world.

IH Motor Truck Division must process millions of figure-facts.

"Our Division's 35 Burroughs Accounting Machines handle accounts receivable records on some 5,000 dealers, customer accounts from 187 branches and stores, complete payroll records—plus just about any other accounting job you can name," says an IH Motor Truck Division spokesman. "The speed and efficiency of machines tested effected a 50% yearly saving on their original cost. And of special help to us is the ease with which we can train new employees."

For full information on Burroughs data processing equipment—ranging from accounting machines to electronic computers—call our nearby branch office. Or write direct to Burroughs Corporation, Burroughs Division, Detroit 32, Michigan.

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"NEW DIMENSIONS | in electronics and data processing systems"

EXECUTIVE BOOKSHELF

Brief Reviews of New Business Books

Secrets of Success

Developing Executive Capacity *by Edwin Laird Cady. Prentice-Hall, Inc., Englewood, N.J., 204 pages, $4.95.*

A better-than-average "self-help" book for the executive who wants to sharpen his administrative skills and eliminate attitudes that hinder advancement.

Sizing Them Up

The Appraisal Interview: objectives, methods, and skills *by Norman R. F. Maier. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, 246 pages, $5.95.*

A psychologist offers three methods for dealing with the problems of employee development and job improvement through the appraisal interview. Actual transcriptions of interviews conducted by each method are included.

Cast of Characters

The Seven Fat Years: chronicle of wall street *by John Brooks. Harper & Brothers, 49 East 33rd St., New York 16, 240 pages, $4.*

The men whose grandiose maneuvers made the stock market boom of the Fifties the liveliest on record are leading characters in this story of a wild and "bullish" era in Wall Street.

Warning and Challenge

Raw Materials: a study of american policy *by Percy W. Bidwell. Harper & Brothers, 49 East 33rd St., New York 16, 403 pages, $5.95.*

A foreign trade expert challenges the Government to remove import restrictions which he says obstruct foreign policy and threaten the loss of indispensable outside resources.

Payoff in Safety

Modern Safety Practices *by Russell DeReamer. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, 357 pages, $7.*

A comprehensive outline of practical accident prevention methods that conform to modern management practices.

Clues About Hues

Color Planning for Business and Industry *by Howard Ketcham. Harper & Brothers, 49 East 33rd St., New York 16, 274 pages, $5.95.*

A leading color engineer cites case histories to show how color can help sales, attract customers, improve safety, build morale, and pep up advertising and promotion.

What Motivates Young Executives?

WHAT KIND of compensation is most effective in keeping young executives happy and hard-working? To find out, we asked the more than 100 industrial leaders who compose DR&MI's Presidents' Panel. The answer given by 58 per cent: adequate base salary.

Young executives "should be paid as well as or better than others in leading companies in the industry," one company president says typically. Other presidents, however, favor raising the young executive's pay above the average through incentive payments directly related to his effort and accomplishment.

The best incentive

In fact, very few company presidents say salary alone is enough, although they think it comes first in a strong junior executive compensation program. The pay should be substantial "to take care of poor profit bonus years," "liberal in relation to competitive companies," or "adequate to support and educate family, coupled with deferred income plan permitting the creation of at least some modest estate." Stressing salary, other presidents urge "adequate salary compensation at earlier ages, reserving options for higher positions and increasing these with each promotion" and "immediate and adequate recognition of their future value in advance, keeping ahead of their productive worth, and showing them that their potentials are recognized."

Most company presidents firmly believe in keeping the young executive's direct compensation attractively flexible through bonuses, profit sharing, and stock options.

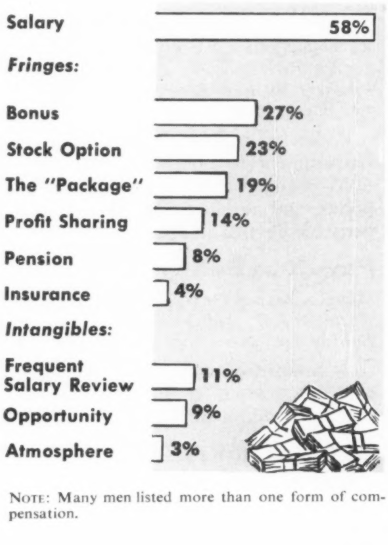
One panelist speaks for many of his colleagues in this summary of his overall recommendations:

The most effective compensation philosophy for holding young executives and maintaining their drive and initiative is one which recognizes base salary as the fundamental building block of personal reward. However, to maximize motivation, the addition of *appropriate* incentive payments which are premised on individual challenges and individual attainment of results coupled with longer-term fringe opportunities which enable the man to feel a sense of proprietorship in the business provides the best over-all approach.

Job motivation

In "The Executive Function and Its Compensation," a study prepared for General Dynamics Corp., by the University of Virginia Graduate School of Business Administration, it is pointed out that motivation depends to a considerable extent on the type of job. The report concludes that four major job

HERE'S HOW *a group of top industrial leaders rank the compensation factors they consider the most effective in motivating younger executives:*



NOTE: Many men listed more than one form of compensation.

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classifications require different motivation:

1. The chief executive's job, a special case. *Motivation:* individual negotiation to "maximize his sense of satisfaction, assure his undivided interest, and set the pace for the executive group."

2. Jobs where competence directly affects profits (director of sales, production, advertising). *Motivation:* appropriate incentive pay, or bonuses, which can come out of these profits.

3. Jobs requiring specialized knowledge in dealing with affairs (company counsel or controller). *Motivation:* profit-sharing or stock-purchase plans.

4. Jobs requiring specialized knowledge and creativity (research director). *Motivation:* proper work atmosphere (contemplation is likely to be an important part of job) plus deferred payments or substantial insurance.

Extra money for merit

Four presidents in ten believe that young executives who have a good base salary find bonuses or some form of profit sharing—"earnings directly tied to individual initiative!"—the most interesting fringe benefits. The formula prescribed by many of the top men is high salary plus cash bonus. While the presidents often favor deferred payment for their own bonuses, they think that direct cash payments mean more to young executives, who are paid less and often have children to rear and educate.

Two men in ten also think that stock options make a sound compensation incentive for the young executive. These "create a sense of responsibility through ownership," "provide personal tax benefits," and offer the young man a chance to build an estate. But financing the stock may create difficulties for the young executive, as it sometimes does for higher-paid presidents.

For younger executives, the presidents think pensions and insurance are less immediately attractive, but the whole fringe package is considered the best incentive by two men in ten.

The chance to get ahead

Of course, individual presidents mention the importance of intangibles like opportunity and atmosphere in keeping young executives well motivated and happy. In fact, one president in ten stresses the importance of opportunity to the younger executive. And slightly more than one man in ten emphasizes the importance of a frequent review of the younger man's growth and compensation as a manager.

It is not surprising to find the top man advocating the same incentives to maintain the drive and reward the efforts of the young executive as he himself finds efficacious. —K. H.

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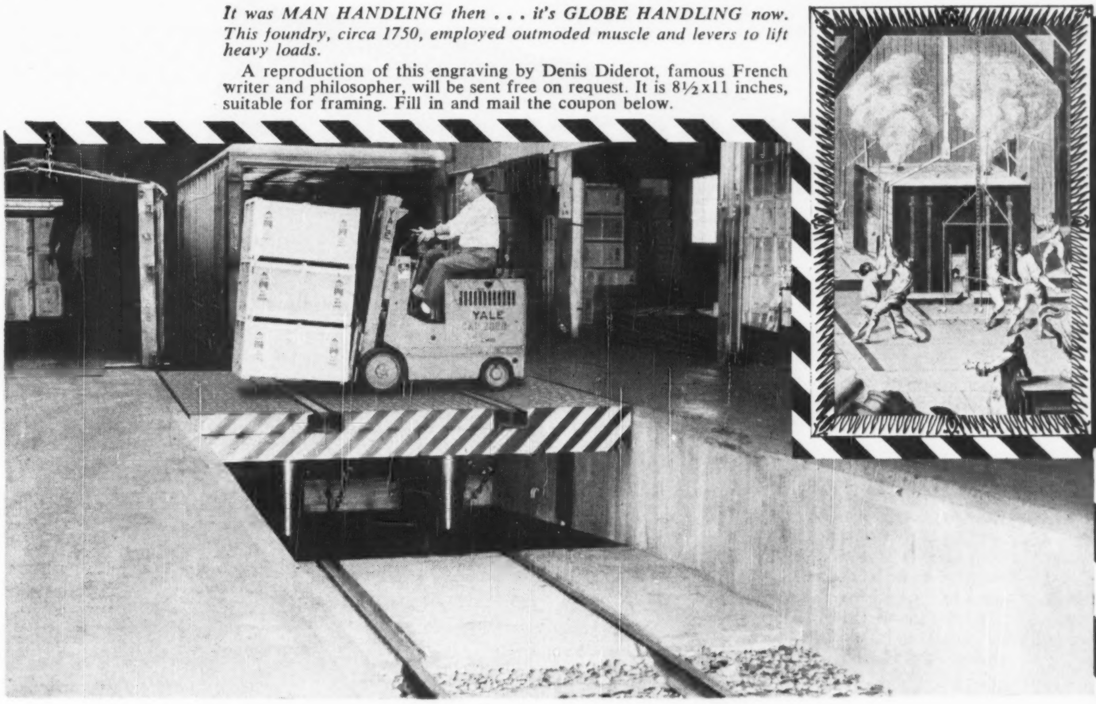

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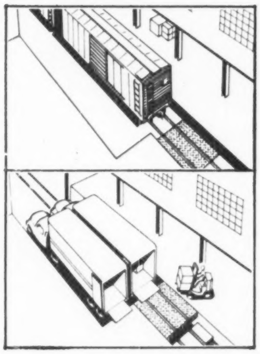

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Capital Views & Previews

A warning to business executives from the Treasury Secretary

Bandwagon Fever Perils Stability

PAUL WOOTON, *Contributing Editor*

HOW CAN the American business executive, buffeted as he is by the changing winds of political fortune and consumer psychology, form any hard-and-fast rules for judging what economic policy is best for his business and the general economy?

Here is the authoritative advice addressed to top management by Secretary of the Treasury Robert B. Anderson in a recent DR&MI interview:

Judgments should be based on the tangible factors in the economy and not on erratic waves of sentiment.

Look back over economic developments for the last year and a half. In mid-1957, most people were vocal in their demands for retrenchment of Government spending. Six months later they were insisting on massive public works and heavy reductions in taxes. Eighty-five per cent of the suggestions made to the Government urged a big tax cut, plus heavy Government spending. Another few months rolled around. By then their concern had shifted. It now centered on steps that could be taken to ward off inflation. That is still the concern today. Be assured that every effort within the power of the Administration will be made to avoid such a cruel catastrophe. And with the help of the people and the Congress, it will be avoided.

A job for Government

Secretary Anderson firmly believes that, in addition to carrying out programs required by law to promote maximum employment, production, and purchasing power, the Government has the equally important responsibility of maintaining the stability of the currency.

Maintenance of the purchasing power of the dollar is an obligation that Government owes to its citizenry and to the free world, in his view. Despite all its problems, the United States can be made an even greater bulwark of financial strength. That requires constructive leadership and the cooperation of all concerned. Resumption of growth demonstrates the great resiliency rooted in a competitive market, he contends.

Robert B. Anderson

Here are some of the available assets which the Secretary believes will make his optimistic prediction come true: A vigorous, growing population. Multiplicity of new products and processes. Growing skills. Managerial capacity. A relatively stable currency. An efficient financial system.

The equivalent of a state the size of Kentucky is being added to the country each year through population gains, Anderson points out. Scientific progress is taking place in every area. The people have an intense desire to improve their standard of living. We have the industrial mechanism to meet any military or

civilian demands likely to be made on our economy, Anderson says.

The Secretary also calls attention to the fact that American industry after World War II and through 1957 spent $300 billion in expanding its capacity and modernizing its equipment. That investment alone was greater than all the military expenditures of the United States during the war. As a result, output per man hour has been greatly increased.

A nation that has conquered so many of the forces in the material world and which has attained such a high standard of economic literacy, is not going to repeat the mistakes that so many nations have made in following unsound fiscal and monetary policies which erode the purchasing power of their currency, Anderson declared.

Although our tax burden is high, Anderson did not feel that a tax reduction was the weapon to use in combatting the recent recession. He notes the "impressive" performance of private enterprise in reversing the downward trend without the massive intervention of the Government.

Business help needed

In the battle to keep the American economy on an even keel, high priority must be given to efforts to educate the public in methods of sound Government finance, Anderson maintains. The American people, he observes, learn easily, but because they have never gone through a complete inflationary cycle, they are more sensitive to what happens to employment than what happens to purchasing power. Business can help, Anderson says, in promoting the public's understanding and support of sound Government financial policy.

It is important, for example, that the public understand the problems involved in estimating the amount that will be realized from taxes. Business men who are familiar with the preparation of budgets can be helpful in promoting popular appreciation of the Government's huge task.

During his recent trip around the world, and especially at New Delhi where he headed the U.S. delegation to the annual meetings of the International Monetary Fund and the World Bank, Secretary Anderson was impressed by how closely all countries are watching U.S. fiscal and monetary policies. Anderson also found general agreement that definite progress is being made in the promotion of world trade and improvement of payments arrangements. To continue this improvement, the finance ministers and heads of the Central Bank meeting at New Delhi began a study of the advisability of increasing the resources of the Fund and Bank to a level which would be adequate for the years ahead. Anderson said he was

pleased that the temporary balance of payments difficulties of recent years have been handled satisfactorily, and he noted that maintenance of a high level of imports by the United States has had a stabilizing effect.

Anderson is hopeful that discussions now in progress will demonstrate the feasibility of the proposed International Development Association as an affiliate of the International Bank which would make long-term development loans repayable in whole or in part in the currency of the borrowing country. He regards the work being done to establish the Association as a major effort of international financial negotiation. But, despite the urgent need of less-developed nations for long-term dollar and hard-currency loans at reasonable rates of interest, Anderson emphasizes that it is in everyone's interest to be sure of the soundness and workability of the plan before undertaking it. These questions, he says, must be answered: Is local currency available in countries which might have capital goods available for export to other areas? If there are such holdings, would the countries permit their use for financing exports? Would they be willing to have the currencies turned over to an international agency for this purpose? Would financing through this agency within the country be favored by countries now receiving loans repayable in local currency from United States programs?

Russian offensive stalled

As to the vaunted Soviet trade offensive, Anderson is confident that the Russians are no match for American enterprise. The economic "war" declared on the United States is not developing as Khrushchev boasted it would, Anderson says, calling attention to the fact that Americans have won out in areas where the lines of competition have been drawn.

The Treasury Secretary has drawn up a set of positive objectives which he and his department are striving to meet. They are as follows:

This nation will maintain the integrity of the currency. We will operate the Federal Government at a minimum cost consistent with our defense and our domestic responsibilities. We will continue to recognize that there is no escape from paying debt. We expect this generation to carry its share of our burden. We will firmly adhere to the proposition that nations as well as corporations and individuals must carefully budget their resources and expenditures in relation to long-term stable growth rather than on short term fluctuations.

What this nation seeks to achieve is a sustainable rate of growth in terms of lasting jobs and dollars which maintain their purchasing power. END

What has been happening to pride of craftsmanship in American industry? This important question, raised by the editorial "Art, Craft, and Conscience" in the August 1958 DR&MI, is thoughtfully considered here in a brief essay by the Acting Curator, Department of Arts and Manufactures, The Smithsonian Institution, Washington, D.C.

Is Craftsmanship Out of Date?

P. W. BISHOP

PRIDE IN craftsmanship depends on the closeness of the artificer to the consumer.

The man who handcrafts a pair of shoes obviously takes pride in his work in proportion to the customer's pleasure and to the latter's disposition to return for more shoes. The modern worker rarely has the opportunity to carry the job through the whole process of selecting the material, taking the measurements, making, and fitting. He is not able to see the sparkle in the eye of a customer who looks over a job well done.

There are many who believe that in the "old days" the pride of artistic performance was almost universal, but are we not apt to overlook the multitude of workers who were denied this satisfaction? The legendary builders of bridges, castles, and cathedrals, who "wore the badges that identified true craftsmen," were served by a mass of underpaid labor which brought the stone to the master. Unless the laborer was a monk and thus spiritually connected with the project, he had no more opportunity to express his creative talent than today's assembly line worker.

The gap widens

Today, the opportunities for craftsmanship still exist. Indeed, they are probably greater because the proportion of skilled men to unskilled has undoubtedly increased in recent years.

The difference between ancient and modern times lies in the fact that the focus of the craftsman's pride has shifted from the consumer. The man who develops a new machine to perform an operation (one of a series, perhaps) in a complicated production process, finds his customer is the production line itself. When the device is successfully fitted into the scheme of things and speeds up the flow of work or completes an operation more cheaply, the man who did the job gets a satisfaction as great as his artificer ancestor.

There is no need to multiply the examples of the kind of man we mean. He exists in every tool room, in every development laboratory. His shingle is not hung before his door. His shop is hidden in the recesses of a great sprawling plant, but he is as worthy of membership in a medieval guild as any cordwainer, silver "wyre" drawer, or goldsmith of the 16th century.

Ends and means

Modern methods may conspire to reduce this pride, as when the delicacy of a fine machine is employed to manipulate shoddy material, or when glamorizing the product leads to a degeneration of the public taste for fine things. Yet, in a sense, the remoteness of the consumer sometimes spares the craftsman the full impact of the shame which must have affected the early artificer when his employer required him to debase his art.

Pride in craftsmanship will be enhanced to the extent that we eliminate the routine job. Whatever the effects of automation on quality control, its true merit lies in its elimination of the situation in which a man has less skill than the machine he is operating. Feeding material to a machine requires no skill. Building and servicing the machines themselves require the work of craftsmen.

Therefore, instead of deploring the disappearance of pride in craftsmanship, we should be concerned with the problems we are creating by extending the opportunities for it. Those who, heretofore, have been denied access to the tool room need education and training to enable them to catch up with their artificer colleagues. In times past, a boy was bound apprentice at twelve or thirteen. The disciplines of craftsmanship provided him with a general education and a skill. If we lack craftsmen in the future, it will be because we have neglected to provide an adequate substitute for the values of old-time apprenticeship. END

Revolution in Metalworking

ALSO: ***Plastics on Display; Patent Lag Slows Research***

HARNESSING a "tornado" to work metals and other materials—that's the idea behind a new class of metalworking tools from the Convair Division of General Dynamics Corp. Forging, forming, extruding, compacting, shearing, and blanking are the varied operations that can be performed by these high-velocity, high-energy-rate tools called "Dynapak" (see photo). What's more, the machines are only one-quarter the size and weight of comparable conventional machine tools.

Designs for the new machines, which come in three sizes, were based on the known fact that many metals, when worked at high velocities, exhibit hydrodynamic behavior—that is, they flow like plastics. Built around the well-known "Hyge" shock tester, the compressed-nitrogen-powered Dynapak machines create high impacts moving at the required high velocities. The results are not unlike those produced by the explosives already used by the aircraft industry to form metals. Built-in shock absorbers take up the impact so that only a few bolts are needed to attach the machines to the floor.

METALWORKING WHIRLWIND: *Equivalent in capacity to conventional machines four times its size, this Dynapak fabricator harnesses the force of high-pressure gas to form tough metals instantaneously. It accomplishes hitherto impossible tasks.*

Among the non-metals to which the machines can be applied are ceramics, which can be compacted by this method to achieve high density and strength. The machines are now being manufactured at Pomona, Calif.

Machinery Dominates Plastics Show

Bigger, faster, more automatic plastic fabricating machinery (but no new plastics) was the big news at the latest Plastics Exposition in Chicago, which drew 25,000 visitors. A record contingent from abroad included an eleven-man Soviet delegation, whose leader discussed recent Russian plastics progress at a heavily attended technical session. It was obvious from his talk that Russian plastics research—if not production—is on a par with our own.

Great interest in the subject of plastics in construction was evident at the show. Speakers estimated that it would take a decade for plastics to break into the building construction industry in any great volume. Meanwhile, craftsmen would have to learn to use them, and a distribution system for plastics comparable to the present method of distributing construction materials would have to be established.

Needed: Better Patent Protection

The difficulty of obtaining patent protection is discouraging many companies from investing in "risky" research and new product development and is hampering the exchange of technical information, a Harvard Business School report contends.

The number of patents sought annually has not grown since 1929, despite a huge increase in corporate R&D expenditures, the report states. The ma-

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R102—The Results Approach to Profitable Management, *Edward C. Schleh.* When profits sag, management can often get amazingly fast corrective action by asking the few highly specific questions discussed here.

R103—Product Testing: Everybody's Doing It, *Melvin Mandell.* Chances are your competitors and customers are testing products. Here's how it's done . . . and where you may have it done.

R104—Packaging: Industry Looks Ahead, *Annesta R. Gardner.* In packaging, change is the order of the day. Here is a summary of current trends plus an idea of things to come.

R105—The American Office: Today and Tomorrow, *The Editors.* A 32-page extra emphasis feature. Inside the Improved Office, How the Future Office Will Look, How to Cut Down Paper Work, How Tight is the White Collar Shortage, etc.

R106—Future Executives—Handle with Care!, *William B. Given, Jr.* No company asset is more precious than its management timber. A distinguished industrialist tells why—and what we can do to protect it.

R107—Automation, 1958: Industry at the Crossroads, *John Diebold.* A two-part feature showing the record to date and the shape of things to come in a lively field less than 10 years old.

R108—The American Factory: Today and Tomorrow, *Carl Heyel.* A 32-page extra emphasis feature concerned with pinpointing plant location, designing tomorrow's factories, reports on lighting, air-conditioning, air-change, materials handling, etc.

R109—How to Reorganize for Better Profits, *Louis A. Allen.* There are no shortcuts to successful reorganization, but the return on a carefully planned job can be substantial. Here's a tested program broken down into six basic steps.

R110—Opportunities in Overseas Markets, *Charles Henry Lee.* Rich new overseas markets may be more accessible than you think. Analysis of the new trends in overseas business and the benefits and pitfalls.

R111—You Can Improve Executive Meetings, *Hugh A. Gyllenhaal.* You can, that is, if you can sense, diagnose, and solve these subtle blocks to teamwork. Helpful suggestions.

R112—Does Your Company Sales Magazine Really Sell?, *Thomas Kenny.* New ways of playing the organ (house-type) to produce sales. Helpful checklist of pitfalls of publishing a company sales magazine.

jority of patents are taken out in the name of corporations, not individuals. The United States also lags behind many foreign countries in patent applications per capita.

The report, *Patents and the Corporation,* is available for $10 from James J. Galvin, Soldiers Field Station, Boston 63.

Greater Production Flexibility

Once upon a time it was considered dogma that all production machinery should be firmly attached to the factory floor. Today, more and more plants are switching to vibration-smoothing rubber mounts for lighter machine tools.

When production lines must be changed to meet new product demands, improved layout, or repairs, rubber-mounted machine tools can be moved in minutes instead of hours or days. Of course, the heaviest machines, such as rolling mills and presses, still must be firmly embedded.

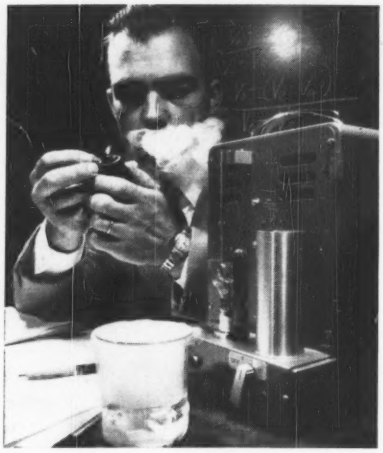
Among the latest converts to the non-fixed mountings are Leeds & Northrup Company in Philadelphia and Allen Manufacturing Co., Bloomfield, Conn.

If you would like a list of 48 manufacturers of vibration-absorbing mounts using both natural and synthetic (principally oil-resistant neoprene) rubber, write to this department in care of DUN'S REVIEW AND MODERN INDUSTRY, 99 Church Street, New York 8.

Cutting Costs for Heating

Most company buildings—plant, office or warehouse—are heated by their own boilers rather than purchased steam.

CUTS ANTI-POLLUTION COSTS: *This new biological waste treating system eliminates need for massive drains and large disposal areas. The compact towers, which were developed by Dow Chemical Company, can be built to a height of 42 feet.*



IMPROVED PLANT PROTECTION: *Simultaneously detecting fire, smoke, and explosive vapors, this instrument could greatly improve plant and warehouse fire prevention. Here, a man lighting a pipe nearby sets off "fire" and "smoke" indicators, while the beaker full of combustible gases sets off the "vapor" alarm. The ultraviolet device is a product of Minneapolis-Honeywell.*

One of the big maintenance headaches is removing the thick oil sludge that accumulates at the bottom of the boiler fuel oil tank. Now Du Pont has developed a new fuel oil additive that breaks up this sludge so that it can be burned. The usual two to three messy, time-consuming annual cleanings are eliminated and fuel oil costs are cut. In one case, $20 worth of additive treated the sludge left by 50,000 gallons of oil, saved $800 in cleaning costs.

New Products, Material and Equipment

More efficient ultrasonics: The key element in any ultrasonic machine is the transducer, the part that converts the electrical vibrations into hard-working mechanical vibrations. Westinghouse has just developed an experimental transducer claimed to be twice as efficient as any now known. If and when it is marketed, it should extend the uses of ultrasonics in industry.

Grease solvent washes away: A new clinging oil and grease solvent can be washed off dirty machinery after it has absorbed unwanted grease. Called "Spill-Off," it is made by Eastburn Marine Chemical Company, Morristown, N.J.

New coat for moly: Molybdenum, which evaporates at high temperatures in the presence of oxygen (DR&MI, October 1958, page 38), may be protected by a new coating developed at the National Bureau of Standards. The plated coating is made of nickel deposited over chromium. —M.M.

DISHONEST DOLLAR
continued from page 43

circumstances have created a crook, not vice versa, Jaspan contends.

Who are the employees most often involved in these cases? According to the DR&MI survey, 60 per cent of the losses involve hourly-paid employees, and the rest are divided about equally among clerical, administrative, and sales personnel.

Jaspan urges the development of non-accounting sources and channels of information. "Accounting reports can be highly useful if regarded as red flags," he says, "but are highly dangerous if not supplemented by other sources of information." As an example of what he means, he describes a company where a certain ratio of scrap was accepted as natural and normal because the ratio had remained fairly constant for many years. Yet a thorough check showed that the scrap reports—for as many years—had been a convenient means of concealing other shortages and "keeping the internal auditor off our necks."

The built-in alarm

What Jaspan calls for is a sort of automatic feedback theft detector. Or, in other words, a prescribed method of doing things which has built into it, rather than added on, an automatic check that blows the whistle when something goes wrong.

As Bollard, the Liberty Mutual special auditor, says, "The check and review which is inherent in a good system of internal control reduces the possibility that errors or attempts at fraud will remain undetected for any prolonged period and enables management to place greater confidence in the reliability of the data made available to it."

A number of respondents in the DR&MI survey concur, mentioning the important role played by their system and procedures staffs, as well as their financial and auditing personnel, in establishing control systems and keeping them up to date.

Typical is the statement of the chief auditor of a national brewery: "Our experience has been most satisfactory since 1947, at which time an internal audit department and a methods and procedures department were established. The chief auditor was given complete freedom to establish the areas, scope, and methods of investigation. At the conclusion of the audit, the methods department worked out procedures containing internal controls designed to correct any shortcomings discovered in the audit."

The secretary-controller of a large furniture manufacturing concern, describing in general terms how the controls system in his company's plant operates, adds the thought that employees

should be kept guessing as to just how procedures work:

> I believe in the theory that it is management's responsibility to put into its procedures as many cross checks involving as many people as possible in the handling of any transaction that goes on. This prevents the individual from getting out of hand or makes it necessary for him to resort to collusion, which is often more easily detected than individual instances of dishonesty. Also, I think that in these procedures there should be an element of mystery involved as to just what takes place in handling of certain matters, so that the individual who is bent on being dishonest will not be too certain as to just how he should proceed.

Generally, companies which report a decrease in dishonesty in their plants (about 30 per cent of those surveyed) credit their success to a company effort to reduce losses. Here are some of their explanations:

- "Adequate internal controls and control departments installed."
- "Close vigilance by supervision. Grapevine publicity on discovered dishonesty. Minimizing of opportunities for dishonesty."
- "Constant policing."
- "Better internal controls and pre-employment investigation."
- "Intensified efforts to prevent."
- "Educational program informing employees of serious consequences of theft and pilferage. Discharges have had deterrent effect."

Weakening moral codes?

Companies whose losses from fraud and theft have been mounting are inclined to put the blame on individual character weakness, rather than on poor management. Almost without exception, these companies blame the increase on a sort of epidemic of moral laxity. Here are some typical explanations from this group:

- "The general attitude of people. A flight from responsibility. Possibly paternalistic ideas and teachings are obscuring the importance of property rights."
- "Socially acceptable to steal from company. Union protection if caught. Company laxness in controls in an effort to decrease costs. High cost of living."
- "It is symbolic of the times (rising living costs and insistence upon maintaining social and economic status quo in the face of declining postwar prosperity)."
- "A general weakening of moral standards."
- "Trend of the times and the aftermath of war."

Only one management with a record of increased dishonesty among its employees has a kinder word to say: "We believe this is a case of individual weakness rather than a trend."

The methods of control described by other survey respondents include nearly all the key points on which Liberty Mutual bases its periodic "crime prevention survey" of its client companies. And there are many listed that probably do not appear on any insurance company's check list. Here are a few examples:

- Bonding of all employees.
- Planting private detectives among the employees; "costs $25,000 a year but is well worth it," reports one survey respondent.
- Periodic unscheduled audits of parts in process; continual audit by weight and number of precious raw material and components; continual audit of time cards to detect time or piecework dishonesty.
- Periodic surprise audits, including physical inventory tests.
- Lunch box checks; salaried field office employees investigated by insurance company carrying their bond; field commission employees by retail credit bureaus.
- Review of all expense reports by an officer of the company; dual responsibility in any involvement of cash; manual signing of all checks over $1,000; reconcilement daily of number of machine-signed checks.
- Work with state legislatures to revise laws which provide loopholes for unfair or fraudulent claims for unemployment insurance and workmen's compensation.

Penalty is dismissal

The great majority of respondents reassess risks and procedures annually, a handful oftener or "when circumstances require." Only a few admit to holding off from full or rigid application of preventive methods (such as spot checks, surprise audits) for fear of harming morale. Again, the great majority call in police or otherwise seek prosecution only in major cases involving substantial losses—but nearly 100 per cent discharge all offenders against whom adequate proof of dishonesty can be established.

With only a few exceptions, companies report that unions cooperate or at least are neutral in dishonesty cases involving their members, providing the company has reasonable proof. Some companies, however, are strongly critical of the unions' "tough" attitude in this regard.

Whether they blame it on mismanagement or weak moral fiber, both corporate financial officers and outside experts seem to agree that the basic cause of employee dishonesty is the simple fact that people are human and capable of succumbing to temptation—and that the only solution to the profit-sapping problem is to strengthen all the procedures and controls designed to eliminate the temptation. END

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The Reviewing Stand

• The European trader's dominant instinct is to *buy* at the right price, while the American trader strives to *sell* at the right price. The European looks for a supplier first and then for a market. But the American seeks a customer with a need and then tries to find a way to meet that need. Americans are often accused of accepting the catalog quotation without bargaining, so long as there is sufficient mark-up margin for a profitable resale. Does such an attitude in purchasing contribute to the increasing cost of processing? The answer may be found in a forthcoming issue of DR&MI, when Richard Taylor will discuss the proper techniques of purchasing, including the whole broad pattern of procurement responsibility.

• "People are always talking about the weather," and, to change the conversational cliché, now they *are* doing something about it. Business men, who know the vagaries of weather can cut profits or lift them, are utilizing many of the meteorologist's skills. Frank Kleiler presents, in the February DR&MI, several intriguing case histories of recent meteorological application which show the surprising influence the capricious mercury has on industrial planning and profits.

• The story of the American factory's exciting future, "Gearing Up for a Decade of Expansion," will be told in a 30-page section of the March issue. Tom Kenny, editor of this Extra Emphasis Feature, has enlisted the aid of hundreds of manufacturers, processors, and transport experts, in measuring the plant needs of the "Soaring Sixties." In planning the issue, organizational conferences were conducted in New York on plant financing, in Cleveland on plant design, and in Chicago on plant location. Management specialists in finance, architecture, transport, technology, and real estate contributed valuable suggestions during the day-long discussions. Supplementing these round-table talks is a nationwide survey of more than a thousand companies and their experience and ideas on plant programing, new product development, and the question of improving or scrapping obsolescent plants. This wealth of forward-looking ideas should help managements reach profit-making decisions on whether to build and where to build, with all the pertinent whys and wherefores.

—A.M.S.